EDUCATION, TRAINING AND EMPLOYMENT

This reference manual is a compilation of factual material related to education, training and employment and dealing with such subjects as automation and technological changes, vocational and technical school courses and facilities in Canada, and the importance of young people remaining in school. It is designed to provide information for the preparation of addresses, particularly those given during COMMONWEALTH TECHNICAL TRAINING WEEK IN CANADA from May 29 to June 4, 1961. But it will also serve as a useful source of information for teachers, parents, and other persons and organizations interested in the problems related to training, education and the world of work.

Prepared and assembled by

the INFORMATION BRANCH, DEPARTMENT

OF LABOUR, MAY, 1961.

INDEX OF MARGINAL SUBTITLES

PROCLAMATION BY HIS EXCELLENCY, GOVERNOR-GENERAL

G.P. VANIER, D.S.O., M.C., C.D.

Now, as perhaps never before, Canada's future progress, prosperity and security are dependent on the educational level, the technical knowledge and skills of our people.

The use of advanced technology is removing back-breaking drudgery from more and more areas of work, and at the same time raising the efficiency of production. This trend gives a new importance to the highly trained worker. Unskilled and semi-skilled employment is being reduced and has now reached a point where it represents only thirty per cent of all employment in Canada.

To those already in the labour force it means, in many instances, upgrading their skills or retraining to prepare for changing employment opportunities.

To the youth of Canada it means that they not only must remain at school longer, but more of them must seek out apprenticeship, the trade school, the vocational school, and the technical institute.

To Canadian employers it means training opportunities must be greatly expanded.

And to all those who have the responsibility of organizing formal education and training, it means methods and facilities must be constantly reviewed and improved.

It is to focus attention on these matters that H.R.H. the Duke of Edinburgh has suggested the observance of a Technical Training Week throughout the Commonwealth this year.

Accordingly I am happy to proclaim the week of May 29 to June 4, 1961, for this purpose and to declare it be known as "Commonwealth Technical Training Week in Canada". I hope Canadians in all walks of life will take an active interest in and will give their full support to the important objectives of this week.

February, 1961.

THE OBJECTIVES OF COMMONWEALTH TECHNICAL TRAINING WEEK IN CANADA

The broad objectives of the week are:

(1) To create more public awareness of the excellent career opportunities which exist in the technical, trade and other vocational fields and to give to these careers their proper place of importance among all occupations in Canada.

There is a reluctance on the part of many students to choose those careers which are accessible through technical and vocational training. Parents too often feel their children should pursue only the academic side of education.

(2) To stimulate the establishment of more apprenticeship and other in-plant training programs which lead to gainful and useful employment.

There is a lack of apprenticeship and other in-plant training programs in Canada to prepare youth for employment in all branches of industry. This is illustrated by a recent survey which showed that only 26 per cent of the firms in a number of important branches of manufacturing were operating formal apprenticeship programs.

(3) To convince young people of the necessity of planning a career and staying in school until graduation, and at the same time to create in parents and youth a better appreciation of the importance and value of education to a person's future employment security.

A recent study indicates that if present drop-out rates continue, 70 per cent of those students entering grade two in Canadian elementary schools will leave the school system before receiving their junior matriculation, thereby shutting themselves off from large areas of employment. Only 30 per cent of the jobs in the economy are in the unskilled and semi-skilled categories and this percentage is tending to decrease. Most of the early drop outs will find themselves competing for these jobs which are still tending to decrease.

(4) To encourage adults to upgrade their skills and increase their education and to stimulate the establishment of more adult education and training programs related to the world of work.

An estimated 7,000,000 adult Canadians have not completed high school and many of these persons have not had the benefit of elementary education, in spite of the fact that a number of provinces operate education and training programs to assist those adults who may wish to upgrade themselves. There appears to be a reluctance on the part of adults to take advantage of these facilities as illustrated in a study which shows that less than five per cent of unemployed persons apply for re-training in provincial programs.

(5) To bring those groups directly and indirectly concerned with education and training closer together for the general benefit of the country.

Co-operation between industry and schools is essential if education and school training are to continue to be related to the changing pattern of employment. Through understanding each other's needs and problems, there is likely to be a better appreciation of the responsibilities of the school to the community and of the community to the schools.

PART ONE

EDUCATION, TRAINING AND EMPLOYMENT

Among the major challenges which will face Canadians in this new decade will be how we can better prepare our youth for the ever-changing occupational world they will meet after they leave the classrooms of our country.

NEED CHANGE IN ATTITUDES

Overcoming the problems inherent in this challenge may call for an alteration in the attitudes of many Canadians towards the value of formal education to a person's later security in employment, and may even entail some major surgery in our entire approach to education and training.

70 PER CENT OF STUDENTS LEAVE SCHOOL BEFORE MATRICULATION

Each year, large numbers of young Canadians are leaving the school system to enter the world of work, many unprepared to meet even the minimum employment requirements of industry. A recent study by the Department of Labour indicates that about 70 per cent of the children who enter grade two have in recent years been leaving school without receiving their junior matriculation or its equivalent, a level of education many industries demand today for training positions. If this ratio continues, this means, based on 1957-58 figures, that 270,000 of the 396,000 students who enrolled in grade two in that year will drop out of school before reaching this level.

DROP OUTS SEEK EMPLOYMENT IN AREAS WHERE JOBS DIMINISHING

These youths will be forced, in most instances, to seek unskilled and semi-skilled jobs, which usually hold little in the way of career opportunities. This is coupled with the fact that only 30 per cent of all the jobs in Canada today are in these two categories and that there is a trend toward the gradual decrease in the number of these jobs in the economy.

EDUCATION RELATED TO EMPLOYMENT SECURITY

There is every indication that this trend will continue and that employment opportunities will be in direct proportion to the level of a person's education. It is known now that many of those persons over 40 years of age who are having difficulty obtaining employment have little academic education. Even in skilled and white collar employment sometimes called "safer" job areas, there is a displacement

EFFECTS OF AUTOMATION WIDESPREAD

of people occurring as automation and technological advances take over repetitive office work and even entire industrial processes.

INDUSTRY DEMANDS HIGHER EDUCATIONAL QUALIFICATIONS

This revolution in occupations is coupled in Canada with a trend in industry toward raising the educational qualifications needed for entry into training programs. A comparatively high level of education often higher than the average school leaver attains, is demanded by industry.

COMPLEXITY OF INDUSTRY REQUIRES MORE SKILLED AND EDUCATED PERSONS

The tendency to raise the educational standards for jobs is not just an artificial barrier in all cases. It has a firm basis, because it is part of a plan to offer more advanced career opportunities to young workers. It has also developed because advances in technology have necessitated trainees to have a more intensive knowledge of chemistry, physics, mathematics and languages. Complex industrial processes and specialization, and the fact that industry cannot always afford long-term informal training, have also worked to raise the level of education required, and have resulted in a demand that a job trainee enter the industrial world at a higher level than was the case even a decade ago.

In a recent visit to a number of companies an official of the Department of Labour noted that some firms were demanding senior matriculation for apprentices. They thought of the young person in terms of his potential as a foreman, a supervisor or even president of the company. Therefore he needed a good academic education to draw on in order to reach the level for which he was suited.

GENERAL LACK OF TRAINING PROGRAMS IN INDUSTRY

Opportunities are sometimes limited even for those more qualified youths because there has been a relatively slow increase in the establishment of training programs in some industries, and indications are that many firms which offer training have long waiting lists of capable young people seeking to learn a skill or trade. A recent survey of manufacturing firms showed that only 26 per cent of the companies were engaged in formal apprenticeship training.

Into this picture where there are few training opportunities, where educational requirements are being constantly raised for those training positions available and for jobs generally, and where semi-skilled and unskilled employment is declining, come the thousands of unqualified young people who leave school before graduation.

What can Canadians do to overcome this situation? Steps are already being taken to attempt to stimulate the establishment of more industrial training programs which will open the door of opportunity for qualified young Canadians. Experiments are being conducted in developing community training programs whereby industries which use the same skills in one municipality are banding together to set up apprenticeship and other training schemes which entail moving the trainee from plant to plant within the trade he is attempting to master. In this way, the trainee is given a wider trade training experience on machines and equipment not available in the smaller more specialized plants. It also equalizes the cost of training and helps to produce a supply of better trained craftsmen.

INDUSTRIAL COMMUNITY TRAINING PROGRAMS

It would also appear that more could be done to develop a greater appreciation of education in the minds of children as well as in those of parents, some of whom think of educational levels in terms of their own successes in life or their own experience, without realizing the many and dramatic changes which have occurred in industry since they have left the classrooms.

NEED GREATER APPRECIATION OF EDUCATION AMONG ALL CANADIANS

Many capable young people drop out of school because of lack of interest or the lure of quick money. It is likely that no lasting changes in attitudes would accrue in itself from raising the legal age limit at which one may leave school, a move advocated by some of the people concerned with the drop-out problem. Perhaps our approach to education could be altered to catch the interest of more of these students and steps could be taken to show clearly the long-term effects early drop out will have on one's future security in employment.

MIGHT ALTER APPROACH TO CATCH INTEREST OF CAPABLE DROPOUTS

We may also need to alter our approach to teaching in the case of children who do not learn as easily as others. The slow learner is a potential wage earner and thus requires as much education as he can possibly absorb to secure his place in the economic structure of the country

SLOW LEARNERS NEED MORE CONSIDERATION

Some provinces have started positive programs to provide for this individual, who does not necessarily lack intelligence, and should not be relegated to the human scrap heap.

NEED FOR MORE ADULT EDUCATION AND TRAINING COURSES

It has been estimated that 7,000,000 adult Canadians have never finished high school. To provide new opportunities in employment for those adults who may wish to improve their education or up-grade their skills, steps might be taken to improve the facilities for adult education and training and to encourage more adults to take advantage of these programs. Considerable work has been done in some parts of the country in this respect, but it would appear that more could be done. In some areas, school boards have taken the initiative and have instituted commercial, vocational and academic courses for those persons who have left the school system. Special re-training programs of unemployed people have long been in effect in most provinces, the cost of which has been shared by the federal and provincial governments under vocational training agreements.

TRAINING OF UNEMPLOYED IMPORTANT ASPECT

Only recently, the federal government amended schedule "M" under which training of the unemployment is carried out and has agreed to pay 75 per cent of the costs of training provided the number of student days of training exceeds seven per cent of the adult population of the province concerned. Some municipalities are studying plans to use existing school facilities to train unemployed persons during the coming winter months under the scheme.

MANY-SIDED ACTION MAY BE REQUIRED TO RAISE EDUCATIONAL STANDARDS OF THE NATION

Raising the educational standards of a nation is a challenge to all Canadians. It may require parents to create within the home an early appreciation of the value of education. It may mean a more explicit attempt on the part of teachers to relate education to human progress, to employment security, and to the world outside the classroom. It may necessitate a critical examination of our entire system and approach to education by educational and training authorities at all levels of government. It may mean that organizations associated with the school system will have to carry out research on school problems and offer advice and leadership to overcome them. It may call for industry to move on a united front to increase training opportunities for young people.

REQUIRE IMAGINATION AND INITIATIVE TO MEET THE CHALLENGE

Whatever forms and directions the roads to a better education and better trained Canada may take, they will undoubtedly require imagination and initiative, perhaps even bold steps, if we are to meet the challenges of this decade, and future decades, and if we are to continue to enjoy prosperity and progress.

SCHOOL DROP-OUT PROBLEM

(EDITORIAL)

This is the time of year when young people start to think about leaving school to obtain permanent employment. Hundreds of students still in elementary school or the early years of high school will turn their backs on the classrooms of this country and walk into the work world, many unprepared to meet present demands, let alone the demands of the future.

PROBLEM IS WIDESPREAD

In many instances, with them will go the shattered hopes of parents and relatives, for whether these young people realize it or not, they will be running the risk of never getting the chance to become a successful part of Canadian industry and business.

This situation is not confined to any strata of society, nor are its effects isolated by city limits or provincial boundaries. If the present rate of drop-outs from Canadian schools continues, with its adverse effects on the economy, it can't help but affect every individual, industry, and business establishment, in fact, every organization in this and future generations.

CAN WE AFFORD LOSS?

It has been said that education, in its broadest sense, is the foundation of a nation. Can we afford to stand by and watch large numbers of our youth leave the school system unprepared for the modern demands of industry and citizenship?

About 70 per cent of the pupils enrolled in grade two in our schools today will leave the school system before receiving their junior matriculation or its equivalent, in many cases ill-equipped to compete for anything but the unskilled and semi-skilled types of employment -- without the necessary flexibility to meet the problems workers are bound to face in the rapidly changing occupational categories resulting from the application of more and more advanced technology.

WHAT IT MEANS IN NUMBERS

The magnitude of the problem is brought into sharp focus by a recent study carried out by the Department of Labour on figures produced by the Dominion Bureau of Statistics. Of the 396,000 youngsters who enrolled in grade two in 1957-58, 131,000 will leave school before reaching high school, some with a grade eight education, others with less. Between first year high school and junior matriculation, 139,000 more will drop out and 95,000 additional students will leave between junior matriculation and first year university. Only 31,000, less than 10 per cent, will go on to university.

BREAKDOWN OF EMPLOYMENT FIGURES

What awaits the person who drops out of school without enough education to guarantee his or her future in a highly industrialized country? An examination of occupations in Canada provides a pretty clear indication. About 70 per cent of the jobs available in this country today are of a professional, semi-professional, technical or skilled nature, and only 30 per cent of employment consists of semi-skilled or unskilled occupations. It is in this last category of employment that most of those with less than a junior matriculation will find themselves competing, and if present trends continue, the problem will become worse as the proportion of unskilled and semi-skilled jobs in the economy decreases in the future.

NEED CHANGE IN THINKING

What is required is a basic change in our thinking and in social attitudes for, in the final analysis, the deplorable drop-out rate must reflect the fact that we adults are not yet convinced of the desirability or necessity of advanced education. Here is the crux of the problem. As parents we must realize the impact of advanced technology and automation on Canadian business and industry in recent years. What was adequate yesterday in the way of education is becoming less and less adequate today.

PARENTS OFTEN RELATE CURRENT JOBS TO OWN EDUCATION

It is natural that some parents would judge present circumstances in the light of their own experiences and assess education today in the light of the education they received years ago, when Grade Eight was a relatively valuable asset in obtaining a job or learning a skill or trade. Today, to learn that same trade or skill, most youths will need a junior matriculation or better. This is not because the standards of the educational system have dropped, but it is because more basic education is required to understand the theories and laws involved in the production and maintenance of all the machines and products which we marvel at and enjoy in this complex age.

Just as our country has advanced in the past few decades, so our need for more education has increased. A full realization of this fact by all adults and children would surely bring about a much-needed change in social attitudes.

SOLUTION REQUIRES NATION-WIDE DISCUSSIONS

The solution to the school drop-out problem rests with every Canadian. The answers must come from industry, educators, governments, unions, and all organizations, as well as from the parents and the children themselves.

The form of the answers will differ, but they must recognize one fact, - that education can no longer be classed as a luxury, but rather as a necessity - a necessity for a people who must be flexible to face an ever-changing occupational pattern.

Vocational Training To-day and To-morrow

(An address by D.E. Bridge,
Vocational Training Branch
Department of Labour.)

NEGLECT OF HUMAN RESOURCES

To-day, as perhaps never before, public attention is being focused on vocational and technical education. In the past we, as a country, have been intensely interested in the development of our natural resources and have neglected to pay sufficient attention to the development of our human resources. Formerly, as the need arose for skilled personnel we were able to import our requirements from England and the content. To-day we are finding these countries are requiring their own skilled men. Now, even with the present unemployment, our Canadian industries require skilled men who are not available among our unemployed.

TECHNOLOGICAL CHANGES ALTER LABOUR FORCE REQUIREMENTS

Our rapid growth in science and technology has brought about new processes, new and automated machinery, new designs and new techniques. These changes have necessitated a change in the requirements of our labour force and have necessitated retraining and upgrading in our labour ranks. The intoduction into industry of electronically controlled equipment, the use of radar, coloured television, the jet aircraft, intercontinental missiles, space travel and other equally startling developments have increased the demand for advanced technically trained personnel to work at a level between the tradesman and the engineer. There is a need for training manpower at all levels and at all ages.

PROVINCES OUTLINE REQUIREMENTS FOR NEXT 10 YEARS

Early last fall the Department of Labour was requested to gather information on a national basis concerning the requirements for training in all areas. Its officials were asked what facilities were available then, what new accommodation was required, what equipment and personnel were required to put the expanded program into operation and to maintain it in operation. Accordingly, the provinces were asked to estimate their needs and to suggest their possible expenditures for the next 10 years. After considerable study of the needs of the ten provinces and a concentrated look into the crystal ball we came up with an estimated cost of 190 million which I will admit startled us but apparently did not startle the Cabinet. They decided to plan new legislation which would provide the type of training which we thought necessary for our own skilled manpower training program. Accordingly, Bill C-49 was planned and came into being on December 20, 1960.

NEW BILL PASSED IN COMMONS

This new Bill was designed to stimulate the development of all technical and vocational training programs in Canada and to broaden their scope. The Bill involved both long-range educational training programs and short-range programs which retrain, upgrade or refresh those who must adjust because of changing conditions of employment, of age or of physical condition.

MANY OF CANADA'S SKILLED WORKERS COME FROM ABROAD

Canada has never trained enough manpower to meet the demands of industry. In a recent study of the tradesmen in five skilled occupations it was found that one in every three workers had received his training outside of Canada. At the annual meeting of the Ontario Industrial Education Council in Hamilton, Mr. McCready, chief engineer of the Steel Company, stated that 45% of their skilled manpower was trained outside of Canada. Other available information points out that the more highly skilled the trade or occupation, the greater the dependence upon immigration as a source of competent workers. The opportunity to qualify for employment in highly skilled occupations should be available to Canadian young people. We must, through formally organized programs, train a much higher proportion of our manpower then ever before.

There are three reasons for this:

REASONS WHY MORE TRAINING NEEDED

(1) During the past decade our population in the 15-to-19 age group rose by a quarter of a million and all indications are that it will grow more rapidly during the next ten years.

(2) The demand for skilled and technical workers is increasing far more rapidly than employment generally. The fastest growing occupations are those that require high levels of training.

(3) The flow of skilled and technical workers by way of immigration to Canada is not continuing because of the need for skilled workers in their homeland.

Problems, Deficiencies and Recommendations

The following are comments and suggestions, based on the views of provincial officials and others actively interested in this area. The problems posed are so inter-related that it is impossible to place them in any order of priority. They are all of importance and need almost equal consideration in developing overall plans for providing a complete training service for Canadians and the Canadian economy.

1. Need for Additional Training Facilities

TRAINING FACILITIES NEEDED

In Canada, at the present time there are 24 institutions of technology providing post-high school technical training, and 5 institutes that offer both post-high school technical and also trade courses. In addition to these schools, approximately 223 technical, vocational, or composite high schools provide commercial, technical, trade or other occupational training programs.

Notwithstanding the service provided by these schools, the greatest shortage or deficiency in the field of technical and vocational education in Canada is that of facilities. Reports from the provinces indicate that this shortage of facilities is found at all levels. The estimated cost of the new buildings and equipment to provide for present and prospective needs for the next 10 years is approximately $190,000,000.

One of the important changes which has taken place in the field of technical and vocational education in Canada since 1940 has been the development of technical, trade, or occupational training programs for persons who have left the regular school system. However, the shortage of training facilities for these programs in all provinces is shown by long waiting lists of students.

TYPES OF FACILITIES DEVELOPED

Practically all the provinces are planning additional facilities of this type at the present time. During the past four years, in the provinces where the Vocational and Technical Training Agreement has been in effect, approximately 90% of the capital funds have been used to provide training facilities for persons who have left the regular school system. However, this has not been a total gain since many of these new facilities replaced temporary schools which were in use since World War II.

At the post-high school technical training level where requirements are developing rapidly, the shortage of training facilities is very acute. Even though these programs have developed more rapidly in Alberta, Quebec and Ontario, the demand for this level of training comes from all provinces, and the facilities are not available to meet the growing needs.

It has been estimated that there is a need for facilities for an additional 15,000 persons in full-time day classes at the trade, occupational and post-high school technical levels.

2. Shortage of Trained Teachers of Technical and Vocational Courses

SHORTAGE OF TEACHER TRAINING

There is an urgent requirement for the development of vocational teacher training programs in Canada to provide both basic and advanced professional training for the growing numbers of teachers who will be required. At the present time, there is a serious shortage of adequately trained instructional staff and, with the building of the additional facilities, the shortage will become more serious. An estimated 1,000 to 1,500 additional trained technical and vocational teachers will be required during the next 10-year period.

TEACHER PROGRAM SLOW IN DEVELOPING

The programs for training vocational teachers in Canada have never been well developed. The need does not justify a college for training vocational teachers in each province but there is ample need for at least four such training centres, one for the four western provinces, one in Ontario, one in Quebec, and one in the Atlantic provinces. Provision should be made for these vocational teachers to advance to degree level in Vocational Education if they so desire.

SUPERVISOR SHORTAGE

There is also a shortage of supervisors and administrators for these programs. These persons usually come through the ranks of the vocational teaching staff but they require training which will prepare them for the responsibilities of directing programs and improving the standards of instruction.

An adequate supply of well trained and highly skilled teachers and administrative staff will, to a large measure, improve the present level of instruction.

3. Need for Additional Research

MORE RESEARCH REQUIRED

Although there has been an increase in research during recent years the importance of expanding this is mentioned frequently by provincial officials and other interested individuals. There is a great need for accurate information about the future requirements of the employment market and the effectiveness of the training programs. Provinces have requested that development be undertaken in the fields of course content, training aids, and national examinations. Practically all the provinces have pointed out the need for the development of national standards.

4. Enlarge Guidance Services

There is an immediate need for many more competently trained guidance personnel for -

NEED ADDITIONAL GUIDANCE SERVICES

(a) educational and vocational guidance at approximately the grade 7 and grade 8 level;

(b) educational and increased vocational guidance at the high school level;

(c) vocational guidance at the adult level.

Adult guidance is particularly important and is needed to assist workers to adjust to the changing employment requirements.

5. Need to develop Training Standards on a National Basis

LACK OF TRAINING STANDARDS

There is general agreement that the various programs and levels of training should be more closely integrated. Standards of competence or achievement must be clearly defined for each level of training, such as for the operator, the craftsman or journeyman, the technician and even for the professional man. Workers should be able to progress to high levels of qualification with full credit for previous training and experience.

Interprovincial and nation-wide acceptance of established standards and levels of qualification is developing in the apprenticeship program. This should be extended to other programs, not only for the benefit of workers but also for the good of our industrial economy.

At the root of most of the deficiencies in the vocational training programs in Canada are two basic factors. The first is the lack of public interest and concern, and the second is the lack of an adequate and a complete concept of what is required of a total vocational training effort to meet the needs of the present and of the future.

DIFFERENT APPROACH TO TRAINING IN CANADA

Vocational training in Canada has not been given as much status and importance as it has been given in some European countries. If our productive capacity is to remain competitive, and if our young people are to be prepared adequately to take their place in our work force and in society the importance of technically trained people must be impressed on all segments of our society, particularly, on the parents and the young people.

Those responsible for education and training must recognize their responsibility for providing a complete and adequate program including the necessary training opportunities for persons who have left the regular school system as well as those attending school. Retraining and upgrading of persons within the labour force are becoming more and more important to our economy and should be considered a part of our overall program.

6. Closer Co-ordination is Needed between Training Institutions and Industries

NEED TO BRING INDUSTRY AND SCHOOLS TOGETHER

A much closer relationship between industry and our training institutions must be established if we are to develop the complete and adequate training programs required. A number of genuinely interested individuals from both labour and management have contributed a great deal to the development of present programs, both at the local and national levels. Some firms have operated their own training programs for many years.

However, a recent survey of training within industry, made by the Economics and Research Branch of the Department of Labour, indicates that although 31% of manufacturing establishments surveyed had training programs, the number of tradesmen involved was only 21,000 in a work force of a million. It was found also that the number of technicians involved in plant training programs was even more meagre than for tradesmen. Provincially operated apprenticeship programs are providing for only 19,623 skilled tradesmen of which one-third are in automotive repair trades, one-third in building construction, and the remainder in miscellaneous manufacturing and service trades.

On the other hand, our training institutions have concentrated mainly on pre-employment courses in the more traditional trades, and training officials have concerned themselves primarily in operating these courses without sufficient regard for or research into the changing needs of our work force.

NEED FLEXIBILITY IN WORK FORCE

Because of the increasing rate at which traditional skills and occupations are becoming redundant and the rapid change in techniques and the increase in complexity of many other occupations, it is necessary to consider vocational training as a continuous process

throughout the working life of many workers. The responsibility of training institutions no longer ends with the graduation of a pre-employment class or the completion of an apprenticeship. Industry must provide training in more than the day-to-day routine of a specific operation.

A more active interest and participation by industry and a broader viewpoint of the overall training needs of our work force on the part of our training officials are needed. Boundary lines and distinct areas of responsibility should disappear in favour of a co-ordinated, actively shared effort on the part of both groups.

In order to implement this overall program, the following suggestions and comments have been made by provincial and other interested officials:

BROADEN HIGH SCHOOL PROGRAMS

1. High school programs should be broadened in scope and opportunity so that students throughout the country will have the opportunity to remain in school long enough to develop their potential, whether in a general or academic field or in preparation for entry into employment.
2. Vocational high schools should be established on a regional basis where individual communities are too small to support a school of their own.
3. The development of co-operative training programs was also suggested. In these programs the students should spend a portion of their day at school where they are taught theory and related subjects, while the remainder of the day should be spent on the job in the community where they get the practical experience necessary in their occupation. This type of training would provide wider opportunities for training in occupations where there are not sufficient numbers to establish facilities and full-time classes.

4. In the post-high school technical education field the needs are:

POST-HIGH SCHOOL TECHNICAL TRAINING REQUIREMENTS

(a) to expand and develop technological education in regular full-time classes in all provinces;

(b) to develop and make it possible for persons who are employed to acquire technological qualifications by way of

(1) part-time or evening courses,

(2) sandwich courses,

(3) correspondence courses.

5. As pointed out previously, the greatest deficiency in the program for those persons who have left the regular school system is that of facilities. It is recommended that additional facilities be provided in order that the scope as well as the volume of training can be expanded. Many new occupations are emerging and new materials and processes are changing techniques of existing occupations. If our future work force is to be kept informed and up to date, these new occupations and changes in existing occupations must be provided for on a broader basis than at present. It is not enough to provide facilities and operate them effectively. It is necessary that those responsible for the direction of vocational and technical training programs develop and maintain a policy which has as its objective the full development of the potential of Canada's labour force.

MUST FULLY DEVELOP CANADA'S LABOUR FORCE

6. Special schools should be established in appropriate areas to provide for the national need for training in specific fields when there is not a sufficient requirement for the establishment of schools in each province. For example, the establishment of a marine school in a maritime area such as Nova Scotia, with the objective of providing marine engineering, navigation, training of ship's cooks and all other training which would be associated with marine industry, would seem to have merit.

SPECIAL SCHOOLS NEEDED

7. A re-assessment of the apprenticeship program in the light of present conditions of employment and in relation to the growth of pre-employment training is suggested.

APPRENTICESHIP AND PART-TIME COURSES

APPRENTICESHIP AND PART-TIME COURSES

8. Part-time courses, day release and sandwich programs for workers should be expanded and course content should provide full scope for present and future requirements of manufacturing processes of all kinds.

9. Industry must become a full partner with education in the development of manpower resources if the present deficiencies and problems are to be overcome. Only through full co-operation and mutual understanding of education, industry and labour can a complete and adequate effort be made to provide the integrated training programs that this country needs.

Technical and Vocational Training Act

FEDERAL GOV'T WILL 'AY 50% OF :OSTS OF)PERATION

In order to overcome the deficiencies now existing in our overall manpower training program the Federal Government has brought into being the new Technical and Vocational Training Act. This Act established on December 20th, 1960 contains five important new features. The first is that, subject only to the limit of the funds voted by Parliament, the Federal Government will contribute 50% of the provincial government's operational cost of technical, trade or occupational training for all persons who have left the regular school system without the limit of a quota allotment based upon a population group.

'OST-HIGH SCHOOL CAPITAL COSTS SHARED

The second important new feature recognizes and identifies the rapidly growing post-high school technical programs which give training in the skills and application of science and technology, to train the technicians who are so essential in our developing industrial economy. The Federal Government will contribute 75% for capital expenditure until March 31, 1963 and 50% of the cost of operation.

UPERVISOR AND TEACHER TRAINING

The third new provision is one which will make it possible to develop strong technical vocational programs, for it provides for the training of the teachers, the supervisors and administrators, who will be required to direct, supervise, and give instruction in the expanding programs at all levels. The legislation provides for a federal contribution of 50% of the costs of providing training for these persons.

The fourth new feature of the legislation provides that the federal contribution to the cost of new facilities, both buildings and equipment, will be increased to 75% of such costs up to March 31st, 1963. After March 31st, 1963 the Act provides for a 50% share of capital costs without the limit of a quota allotment based on an age group. In the future the only limitation in the federal contribution to capital costs for training facilities will be the amount of money which Parliament is prepared to authorize annually to enable the Federal Government to provide its contribution on either the 75% or the 50% basis of approved projects. The new facilities include technical and vocational schools, technical institutes, trade schools, and institutes of technology.

COST-SHARING FOR NEW FACILITIES

The fifth new feature is the provision for financial assistance for the purpose of enabling persons to participate in either the vocational teacher training program or the programs providing training in the principles of science and technology and the application thereof as required in the training of technicians and technologists.

In addition to the provision of expanded assistance for capital projects, and the other new features, the Act carries forward the present agreements for contributing 75% of the costs of programs for training of unemployed persons.

TRAINING OF UNEMPLOYED

Provision is made also for the continuation of the existing agreements which provide a sharing of the costs on a 50 - 50 basis of the training programs for apprentices, disabled persons, and supervisors in industry. Provision has been made in the Act for more actual training programs to be developed in co-operation with industry. Hence these may take the form of standard apprenticeship training plans, enlargement of present programs for training instructors in industry, introduction of new training programs by industry in co-operation with the provincial and federal governments, and programs for upgrading skills of employees to meet the continuing manpower need and changing occupational requirements

TRAINING FOR APPRENTICES AND HANDICAPPED

It is hoped that industry will accept a larger share of the responsibility for, and develop a greater interest in, the establishment of suitable training programs to meet its needs.

QUOTA ALLOTMENT CONTINUED

With respect to technical and vocational high schools, the provisions of this act authorize and envisage a continuation of the federal assistance that has been provided to date for the technical vocational programs which are part of the secondary school system. A quota allotment is suggested to provide assistance for these training programs, in a manner similar to that which is provided under the present agreement.

Under the new agreement, an annual allotment of $3,000,000 is divided among the provinces by allotting to each province $30,000 and to the Northwest Territories and the Yukon $20,000 each. The balance of the $3,000,000 is allocated to the provinces on a basis of the number of young persons in each province as compared with the total number in Canada.

STUDENT AID AND ARMED FORCES TRAINING

Provision is made for the continuation of the Student Aid assistance as was outlined under the former Act. For some years, the Armed Forces have been sending their overload of training to the provincial trade schools. The Minister is authorized by this legislation as in the old, to pay 100% of these costs. He is also authorized to collect 100% of the cost of training for any other Department of the Federal Government.

Provision is made for carrying on a research program as well as research in connection with training programs and the development of standards on a national basis.

The new Bill provides for the re-establishment of the National Technical and Vocational Training Advisory Council with an extension of its membership from 21 to 23 persons.

It is hoped that this new legislation to provide assistance to technical and vocational training programs will be helpful in stimulating the existing programs and in developing additional programs that are required in Canada to meet the changing occupational needs.

Vocational Education in the 1960s

(Excerpts from an address by C.R. Ford,
Director, Vocational Training Branch
Department of Labour, Canada)

The Federal Government has very materially increased its assistance for Technical and Vocational Training. I thought you might be interested in the provisions of new federal legislation.

The objectives of this federal assistance is,-

OBJECTIVES OF FEDERAL ASSISTANCE

1. to provide assistance for the training of Canada's labour force;
2. it is designed to meet the needs for developing future skilled manpower requirements from domestic sources rather than having to depend upon immigration;
3. it is intended to reduce the number of unemployed persons by providing those who are presently unemployed with the skill required to gain and progress in employment; and
4. to provide for the development of or the increase in manpower efficiency which is essential if our industry is to survive in world-wide economic competition.

At a meeting of provincial Deputy Ministers of Education and Directors of Vocational Education in February, the Minister of Labour said:-

"The additional federal assistance provided under the Technical and Vocational Training Assistance Act is not intended to relieve or reduce the municipal or provincial responsibility in this field, - rather, it was designed to encourage the development of those programs which are necessary for the training of Canada's labour force at all levels and in all fields."

DEPENDENCE ON IMMIGRATION

You know, of course, that Canada has never provided enough training to meet its demands for skilled manpower. We have always relied to a large extent upon skilled and technical workers from other countries. It is not many years since there were dozens and dozens of selection teams from Ontario, scurrying across the Atlantic to Europe to find the trained personnel who were needed in industry in this province. Sometimes it was for bricklayers, sometimes stonemasons or aeronautical engineers, or technicians of one sort or another.

CANADIANS PICK UP SKILLS

Recently, as part of a Federal Department of Labour survey on the training of skilled manpower, a cross-section of tradesmen in five skilled occupations was interviewed. We found that approximately 35% of them had received their training outside of Canada. In other words, more than one in every three had been trained in another country. Moreover, the more highly skilled the trade or occupation, the greater was the dependence upon immigration as a source of competent workers. Much as we appreciate the contribution of the talents and skills of the newcomers, we cannot continue to fill the skilled positions in Canadian industry this way. In many occupations, we have relied too heavily upon our own Canadian workers picking up their skills and knowledge on the job by informal means.

WORLD COMPETITION REQUIRES NEW APPROACH

I have been speaking about the past. We are now in a period when we can no longer afford the luxuries of indifferent preparation and use of our manpower resources. We shall have to train, through formally organized programs, a much higher percentage of our manpower than ever before. We are in competition with the leading nations of the world where the development of manpower potential is given a high priority and technical and vocational training is a continuing process from school through years of employment. Impressive expansions and revisions of training programs have been taking place in Britain, Germany, France and Switzerland. Russia is making great strides in many fields of education. To maintain our position we must develop a new perspective in the problem of education and training for employment. In Europe activity, confidence, and prosperity have replaced fear and suspicion. Having done so well, they keep asking why does Canada seem to be "losing its way".

Dr. E.D. MacPhee, Dean of Administration and Finance, University of British Columbia, upon his return from a recent trip to Europe stated,- There are many reasons for the necessity of a new look at the whole field of training manpower.

REASONS WHY NEED INCREASED TRAINING

1. During the last decade the population in the 15-19 age group rose by a quarter of a million. Yet this was but the beginning of the bulge resulting from the high birth rate of the war and post war years.

2. In the next five years, half a million additional young people will be coming along for education and training, and the growth during the last half of the sixties will be even greater.

3. The demand for skilled and technical workers is increasing far more rapidly than employment generally. The fastest growing occupations are those that require high levels of training. These are occupations that are being pushed to the fore by rapid technological changes. They require a sound fundamental education and training as a basis for understanding of the field of knowledge basic to their jobs and such knowledge can only be acquired through organized trade and technical training programs.

YOUTH MUST GET OPPORTUNITY

A further reason why we must train many more people than in the past is that we cannot expect to benefit nearly so much in the future from immigration of skilled and technical workers. Industrial technology has increased in the countries from which most of these people have come and they are needed at home. The most important reason, however, is that Canadian youth must be given the opportunity to prepare for the positions which are available at present in Canadian industry and which will be developing in the future.

TWO TRAINING JOBS TO BE DONE

There are two kinds of training jobs to be done. We must provide training for those who have left school and are employed, so that they may be <u>upgraded</u> to meet changing requirements, and particularly, we must provide training or retraining for the unemployed. We must also provide more training for those now in our schools so that the ranks of the unemployed will not be further increased in the future.

Fundamental to all I have said about the requirements, the needs, and the urgency, is the basic factor that this is a problem which reaches across provincial boundaries, it knows no political jurisdiction, and local school boards and departments of education find it difficult to work adequately in dealing with national needs

and problems. Business and industry work within their own interests. Without some co-ordinated planning and effort beyond that which can be given by hundreds of municipalities and ten different school systems, considerable confusion will probably be our lot.

AVOID "TOO LITTLE TOO LATE"

It has only been under the compulsion of war that there has been a national mobilization of our resources. Today we need a voluntary mobilization of all our resources in this field to co-operatively develop adequate Canadian plans and programs. It should be done now so that the accusation of "too little and too late" cannot be leveled against us. At the root of the deficiencies in technical and vocational training programs is a lack of appreciation, or a concept, of what is involved in a total vocational training effort that will meet the needs of the present and the future.

NEED A POLICY IN CANADA

There must be a policy. There must be an agency to administer that policy. The responsibility for the direction, administration and co-ordinator of the programs for training manpower is much more important than some Departments of Education realize. Vocational and technical education is not the running of a school or even a series of schools. It is not what is done in the Technical or Vocational High Schools. It is not what is done in institutes of technology or Provincial Technical Institutes or trade schools. It is not the sporadic, inadequate, limited programs for training a few, or even many, unemployed. It is not the apprenticeship program. It is not the upgrading training of employed workers in provincial trade training programs - <u>where they exist</u>; and it is not the training of any particular group or at any level; but it is the composite of all of these co-ordinated to meet the needs of all persons in their transition from school to employment, and on to the development of full occupational competence.

VOCATIONAL EDUCATION - ITS PLACE IN THE LARGER PICTURE

A comprehensive and modern technical and vocational training program has as its objective the development of the full potential of our labour force, and should provide the student with a continuous educational road leading on to his career. Vocational education is an activity which involves the giving of instruction in techniques, skills, and the related application of math, and scientific principles in any occupation. It is a segment of education, however, an important one. It is not intended to be a substitute for general education, it is not in competition with academic education, neither is it a repository for the recalcitrant or the non-achiever.

This involves the work of our high schools which, by and large, produce the students the Universities want. In this they do a good job and must continue to do so and, they must inspire greater numbers to qualify for professional occupations. However, they do a much less satisfactory job of training students who are not going to university, and the quality of the vocational training program at secondary schools has not kept pace with industrial development over the years.

HIGH SCHOOL VOCATIONAL COURSES LACK STANDARDS

It is my belief that the vocational training programs of the Canadian high schools, until some date within the last decade or two, contributed more to the pool of skilled manpower in Canada than all other schools put together. That is not the case today. Either the requirements of industry have technologically moved further along, or the objective of preparing students for entry into employment is a given occupation has lost some of its purpose. The high school technical and vocational courses have <u>no standards</u>, at least none that are identifiable in terms of specific achievement in a particular field.

The comprehensive training program of which I speak includes also the post-high school technical programs, both full-time day and part-time, leading to advanced technical qualifications. This is another level of training in Canada where there is no interprovincial standard.

NATIONAL STANDARDS FOR APPRENTICESHIP

The apprenticeship training program is designed to provide training leading to full occupational competence in a variety of trades. Incidentally, it is the only training program in Canada which has developed interprovincial standards. In five trades, the apprentices completing their indentureship write the same examinations, measure themselves against the same yardstick, irrespective of where they reside or are trained in Canada.

OVER-ALL TRAINING APPROACH NEEDED

The comprehensive training program of which I am speaking also provides training in full-time day classes for persons who have left the regular school system, on either a long-term or short-term basis, by way of day release or block release, for workers from industry; for unemployed persons; for disabled persons; for persons who pay a fee. The courses may be pre-employment or upgrading in nature but they prepare persons to meet the specific qualifications required in industry. Lest there be any misunderstanding about the training offered in trade or occupational training courses, the curriculum of these schools requires that a high proportion of students' time be devoted to related theory, mathematics, science, and general knowledge. There is no publicly operated trade school or Technical Institute in Canada which trains in manipulative operations only.

The comprehensive training program maintains a close and continuing liaison with industry. It is sensitive to changing conditions and maintains close contract through active trade advisory committees. The Technical and High Schools have not maintained this contact. There has too frequently been the attitude - "send them to us and we'll give them what they need."

MUST WORK TO LIVE

No, that attitude is not good enough. We are on a new threshold where training needs have become much more insistent than in the past. Very surely many thousands of people in Canada are being driven to the realization that to live a life means that first you must earn a living. Let us turn now and take a look at the working world into which the high school students will go.

Table 1 and 2 (below) picture, in very broad terms, the occupational distribution of employment in Canada. The professional group includes all occupations in which a university degree or its equivalent is necessary.

TABLE I

PERCENTAGE DISTRIBUTION ON THE CANADIAN LABOUR FORCE

By MAJOR OCCUPATIONAL GROUPINGS

1949 AND 1960

	Percentage Distribution		Av Yrly % Change
	1949	1960	1949-1960
ALL OCCUPATIONS	100	100	1.9
WHITE COLAR			
Managerial	7.8	8.7	3.2
Professional	6.0	9.7	8.7
Clerical	10.4	12.9	4.5
Commercial	6.7	7.3	2.9
Financial	0.5	0.9	9.7
TOTAL WHITE COLLAR	31.4	39.5	4.7
BLUE COLLAR	27.8	28.6	2.2
AGRICULTURAL	22.0	11.4	-3.7
SERVICE	7.6	10.2	5.7
TRANSPORTATION - COMMUNICATION	8.3	7.8	1.3
RESOURCE	2.9	2.5	0.4

Source: D.B.S. Occupational Surveys.

TABLE 2

Occupational Distribution of Employment in Canada, 1958-59

	Percentage
Professional Occupations	8
Skilled Occupations	17
White Collar Occupations	29
All Other Occupations	15
Semi-Skilled and Unskilled Occupations	31

The skilled occupations include all occupations, other than professional in which a minimum of two years' specialized training and experience are required to reach full competency. The white collar group includes such occupations as managerial, clerical, commercial, financial. You will note that in the labour market as a whole, about one-quarter of all the jobs are of a professional or a skilled nature. A further 30% of the jobs in the economy are white collar ones, among which are many requiring high levels of skill.

CHANGE IN OCCUPATIONAL GROUPS

Occupational groups have been changing over the last nine years. Generally speaking, it seems that the faster growing occupations are the ones requiring a high level of training. In the skilled categories, for instance, it appears that the fastest growing occupations are those at or near the so-called technician level:- production planners, tool designers, draftsmen, laboratory technicians, engineering assistants. Conversely if we separate service occupations, which are growing quite rapidly, from the semi-skilled and unskilled categories, then the percentage of change in this group drops to 17%.

Table 3 (below) demonstrates the broad shifts in long-run occupational movements within the labour force between 1901 and 1960. It indicates the following significant trends:

1. The rapid rise in white collar occupations, that is, managerial, professional, technical, clerical, and so on, which have increased at an average annual rate of over three times that of the total labour force.
2. A sharp drop in agricultural employment.
3. A decline in the proportion of manual workers, particularly unskilled and semi-skilled persons.

TABLE 3

PERCENTAGE DISTRIBUTION OF THE CANADIAN LABOUR FORCE

BY MAJOR OCCUPATIONAL GROUPS

1901 AND 1960

	Percentage Distribution	
	1901	1960
ALL OCCUPATIONS	100	100
WHITE COLLAR		
Managerial.....	4.3	8.7
Professional.....	4.6	9.7
Clerical.....	3.2	12.9
Commercial - Financial.....	3.1	8.2
TOTAL WHITE COLLAR	15.2	39.5
BLUE COLLAR		
Labourers - Unskilled Workers.	7.3	5.7
Manufacturing - Mechanical....	15.9	17.5
Construction.....	4.7	5.4
TOTAL BLUE COLLAR	27.9	28.6
AGRICULTURAL	40.3	11.4
SERVICE	8.2	10.2
TRANSPORTATION - COMMUNICATION	4.4	7.8
RESOURCE		
Mining.....	1.6	1.0
Fishing, Hunting, Logging and Trapping.....	2.4	1.5
TOTAL RESOURCE	4.0	2.5

Source: 1901 figures from Census of Canada
1960 figures from D.B.S. Occupational Surveys.

DISTRIBUTIVE EFFECTS OF AUTOMATION

It is in this semi-skilled and unskilled area that one of the important effects of technological change is occurring. A rather surprising finding of our research investigations was that there seem to be very few cases of direct lay-off occurring because of technological change, even in cases of relatively large scale automation. What was and is happening, it appears, is that many of the effects of these changes are being transferred in a great variety of ways to groups of workers other than those directly involved.

The trends just outlined indicate increasingly large numbers of other categories of employment are now requiring education and training rather than manual skills of their incumbents. Old categories of work have undergone a substantial change. The level of skills and the basic educational requirements demanded of workers within all these groups are rising.

Even within the category of semi-skilled work, the emphasis is generally shifting from physical effort to conceptual and visual skills. Workers need enough basic education to permit them to read, write, count, record data, read meters, make routine calculations and generally react to visual stimuli.

The same change of emphasis is evident among the groups of skilled craftsmen. In addition to the continual rise in the level of skilled and specialized training, many craftsmen now need an increasingly broader understanding of their specific field. For instance, many electricians now need a general understanding of electronics. Auto mechanics need a knowledge of pneumatics and hydraulics.

OLD SKILLS BECOMING OUTMODED

In the office, too, new occupations are growing up and some old skills have become outmoded. Electronic data processing, it would seem, is being introduced at an even greater speed than automation in the plant. Many of the new office jobs really constitute a group of occupations for technicians. They are the counterpart of the growing number of opportunities for technical employment in production. They require different skills

from those of many old routine clerical jobs. Whether or not the overall impact of mechanical and electronic data processing will be an absolute decline in office employment is not clear. There is not yet sufficient research evidence available to tell.

EMPLOYMENT RISING IN SERVICE INDUSTRIES

The revolutionary increase in categories of white collar and other highly skilled manpower, that is, as a percentage of the total number employed in the labour force, is the result of two factors. There has been a substantial shift in employment from the physical goods producing industry to the service industries, where the proportion of white collar workers has always been high.

OCCUPATIONAL SHIFTS WILL CONTINUE

Secondly, there has been an increasing and even more significant development. Technological, organizational and administrative innovations in the field of production and distribution have increased the proportion of white collar and skilled employment in individual industries. This is particularly true of goods producing industries. The great occupational shifts within the Canadian labour force are likely to continue at an even more rapid rate in the decade ahead. All evidence suggests that the substitution of high level human resources, for unskilled and semi-skilled manual labour and routine clerical labour, is almost certain to increase.

The main reasons for the continuation of these occupational changes may be summarized as follows:-

REASONS FOR CHANGES

1. The continuing shift from an agricultural economy to one that is predominantly industrial.
2. The continuing rapid acceleration in the rate of change in technology, organizational structure, and administrative techniques.
3. The expansion of Canada's scientific research and development activities.
4. The growing consumption of educational, health and other services, which are largely provided by professional and technically trained personnel.

The growing emphasis in manpower requirements will be upon relatively high degrees of skill, knowledge, specialized training of various kinds. This will result in a need to upgrade the skills and adaptability of many of the present members of our labour force for the changing employment opportunities will seriously limit the ability of many individuals with inadequate education or a lack of skill to compete for jobs.

LACK OF SKILLS

Analysis of existing unemployment indicates that the unemployment rates are highest among young people and the unskilled and less educated manual workers, particularly those formerly employed in the goods producing industry. With regard to the

EDUCATION AMONG YOUTH

employment of young people and those workers who are lacking in particular skills and basic education, I am frankly concerned. There will be a rapidly growing number of young workers entering the labour market in the 1960s. Many of these people will be relatively unskilled. This situation will bring with it many associated problems of occupational adjustment.

EDUCATION AND UNEMPLOYMENT

There is a strong relationship between education and unemployment. In February of this year, the Dominion Bureau of Statistics undertook a special survey of the educational attainments of persons without jobs. The results were striking. The unemployed rates for persons who did not complete primary school are more than twice the rates for people who completed primary school but did not complete secondary school, and six times the rate for people who completed secondary school. For the week ending February 20, 1960, the percentage of the unemployed who had not completed primary school was 19; for persons who had completed primary school but not completed secondary school, 8%; for persons who had completed secondary school, 3%. These results relate to a single survey but there is every reason to believe that, broadly speaking, they represent a general situation. Information on the relationship between skills and unemployment rates suggest, too, that the rates are much higher for unskilled workers.

SCHOOL DROP-OUT FIGURES

Now, let us look at the schools. First, we might see how well they are holding the pupils in school. A study shows that for every 100 pupils that were in Grade 2, 67 reach Grade 8 or, in other words, approximately one-third of the students have left the school system before completing Grade 8. It also shows that 32 attained junior matriculation. That means that two-thirds of the pupils have left the school system before they complete junior matriculation. 21 of the 100 complete senior matriculation. Now, if these figures are corrected for the situation in Ontario, we would find that instead of 67% completing Grade 8, there would be 87%; instead of 32 students completing junior matriculation, or Grade 12, there would be 34. In Ontario we find a much higher percentage of students stay in school till about the end of Grade 10, but by the time they reach the end of Grade 12, or junior matriculation level, there is little difference between the number that complete that level of education in Ontario from the general level across Canada.

In view of the observations we made about the requirements of the labour market, the fact that two-thirds of the young people leave school without completing junior matriculation or equivalent training, presents us with a serious problem. For somehow, these two-thirds who have left the school system with an inadequate background, must acquire the skills and knowledge which will enable them to secure and hold employment.

DROP-OUTS EVERYONE'S CONCERN

It is not good enough to say, as did one senior education official,- "Well, they have had their chance. They left school. They are no more concern of ours". I maintain that they are a concern of each and everyone of us. We need them in employment. We need them to contribute to the payment of the taxes of this country and where there are deficiencies in training they must be eliminated. Most of the countries of Europe had the same problem and they have dealt with it in a realistic way by providing a second route whereby those persons with inadequate educational or occupational training may bring their qualifications up to the level required by the labour market.

Since I have been speaking of the problems relating to the training of our manpower, I thought it might be of value to review the technical and vocational training programs of Canada.

LEVELS OF TRAINING IN CANADA

In a survey completed three years ago, training was identified at three different levels. (1) There was that given as part of the high school program. (2) There was the post-high school program, and (3) the trade or other occupational training program provided by provincial trade schools and technical institutes, and vocational schools of one kind or another. Vocational courses at the high school level are offered in institutions having a variety of names. They may be called vocational, or technical, or technical vocational, or commercial, or composite high schools. The name of the school does not always signify the kind of a program offered, and the terms 'technical' and 'vocational' are used interchangeably.

Although the names of the schools differ and the courses may differ, the purpose is generally the same. That is, to prepare students for entry into employment while completing their general education. The technical or vocational high school has been rather typically a Canadian development.

COMPOSITE HIGH SCHOOLS

In recent years there has been a very definite swing towards the development of composite high schools. As far as quality of vocational programs, the composite high schools have added nothing to the program. In fact they have contributed very materially, in my opinion, to the deterioration of the quality of the training provided at the high school level particularly in trade and industrial courses and there is considerable evidence at the present time of a developing swing back to the vocational or technical high schools.

STANDARDS NEEDED

I said earlier that the vocational courses at the secondary school level have no standards, and I meant that. It does not mean that many of the high schools are not doing a good job for, in fact, they are. The quality of the training provided in many of these schools is excellent in terms of the courses outlined, but even the best of them don't have any qualification by which the graduate of the courses can be identified. Very often, right beside or close to

a school that is maintaining a high standard, there is another school that offers courses by the same name and presumably the same level, but the quality of the product can't be compared and, just as poor money drives out good money, the poor courses are driving the good ones out.

NUMBER OF VOCATIONAL TECHNICAL SCHOOLS IN CANADA

In Canada there are 236 vocational, technical or composite high schools offering training in five broad occupational fields to just over 100,000 students. Of this number, approximately 58,000 are in the field of commerce. Technical, trade, and other similar occupations are in second place, and enrolments in agriculture, service occupations and commercial and applied arts are well down the list. Post-high school technical training is offered in 29 Institutes of Technology or technical institutes in 1960. In three of the provinces only technological courses are given in each institute. In four other provinces, both technological and trade courses are given in the same institution. Instruction is given in the technical institutes in eight different broad fields, including engineering and scientific, medical and health, business administration, service administration, design, printing, education and others. The enrolment in post-high school technical training has grown from 3,000 in 1952 to 9,443 in 1960-61.

The area of vocational or technical education which has grown most rapidly in Canada in recent years has been that which provides training for the persons who have left the regular school system, that is, below the level of the post-high school technical training which we have been talking about. In other words, those institutions which provide trade or occupational training at the operator or the tradesman or journeyman, or a comparable level, in any one of a great variety of occupational fields,- these are the kind of institutions which provide the related or practical training for apprentices, for unemployed persons or disabled persons, or for persons who pay a fee, or for workers from industry.

NEED MORE TRADE AND OCCUPATION FACILITIES

These are the institutions which are needed to provide the basic or practical and theoretical training for that two-thirds of the school students who did not complete their education or training before they left the regular school system. The courses offered by these institutions may consist of full-time day courses extending from a few days to a couple of years. Instruction may also be given in part-time or evening classes. They provide the related training in classes for apprentices. They offer training programs in up to 100 occupational fields. As a matter of fact, training can be organized in any field for which there is a requirement. At the present time, there are approximately 61 schools in Canada offering trade or occupational training of the kind we have been discussing.

It is rather interesting to note that during the past four years, 90% of the Federal funds for capital expenditures have been used for developing training facilities for people who are no longer in the school system. Included in this expansion have been institutes of technology providing post-high school technical training, and trade schools or technical institutes providing training for adults at the operator level and instruction leading to the journeyman or craftsman level. In other words, the trend in Canada today is to provide technical and vocational training facilities for those who have left the secondary schools.

"Can the schools keep pace with the demands of modern industry?" Can the schools of any country keep pace with the demands of modern industry? Are the schools of any country doing a better job of keeping pace with the demands of industry than we are in Canada? From information we have we would conclude that several countries of western Europe are doing a better job than we are in Canada. If they are, why don't we copy what they are doing? You know and I know that it is not the answer. Conditions are not the same here as in other countries, and we can't transplant a system of training as you might a single person.

CANNOT COPY EUROPE

If the schools and training programs are keeping pace elsewhere they can also do so in Canada. But we must want them to.

NEED TO MODERNIZE PROGRAM

We must have a POLICY which recognizes that the schools and programs must keep pace. This must be an objective or a purpose of the schools. We must re-establish contact with industry and learn its requirements today and plan to meet them, rather than offering them what we think they need. We must develop the facilities - the schools and programs, and the administrative machinery to do so. It is no longer good enough to perpetuate a program which was developed more than a generation ago. A program which has developed the same resistance to change as education in general. This applies to the work being done in your Vocational, Technical and Composite High Schools, yes and also to the Apprenticeship programs, many of them haven't changed either in nearly two generations.

The requirements of industry are many and diverse. The contention that the program of the high school, be it Composite or Technical can meet the needs of industry, is as unrealistic, as it would be to suggest that motor, or air transport or any other single means would meet our transportation requirements. The Technical High School program has an extremely important and basic part to play in the total program of developing the skills of our labour force. But let us be under no ILLUSION. They <u>cannot</u> by themselves meet the requirements of modern industry and they are doing a great disservice to the training program and to education if they pretend that they are or can.

WHY?

MORE THAN JUST TECHNICAL SCHOOL TRAINING REQUIRED

1. The majority of persons who require training to-day have left the elementary or secondary schools.

2. The function of the secondary schools is to provide the education and basic training for the great wave of youth who are coming up through the school system.

3. The programs of the Technical High Schools do not turn out skilled mechanics or workers and their programs are not integrated with other programs which do carry the students on to full occupational competence.

4. The program of the secondary school is usually limited to a few traditional fields and the selection of students for technical courses is too often based upon non achievement in academic work rather than interest, aptitude and ability.

5. The part-time or evening programs -- with the exception of the Advanced Technical Evening Classes and a few other programs -- provide a completely inadequate service of training or upgrading adults.

6. The High Schools cannot service the thousands of apprentices in the apprenticeship training program. The day or evening classes to provide the related training for this program has long since passed.

To provide the training services required both for that percentage of the students who do not complete Junior Matriculation and the persons already in the labour force, additional facilities must be developed. Two kinds of facilities.

KINDS OF FACILITIES

1. Schools that will train the workers in the labour force, whether operators craftsmen or skilled workers in any of a great variety of occupations. Schools that are flexible as to terms and hours. Schools that will provide for any training, need in any field whether in the factory, or in agriculture, the home, the forest, the mine -- or in fishing, manufacturing, construction or any service occupation.

2. The second type of school is already being well developed in Ontario. These are the Institutes of Technology -- which provide the post-high school technical training of technicians in many fields.

The schools of Canada can keep pace with the requirements of modern industry -- if we undertake to develop the schools and programs as required and in co-operation with industry. The vocational or technical high school cannot by itself provide the service required by industry -- but they have an extremely important part to play in the total training program. Their place and contribution cannot be provided by any other school. However,

their contribution to the total program should be properly identified and interrelated and then these schools should develop the strongest programs possible.

DEVELOP PROGRAMS TO MEET NEEDS OF PEOPLE

The challenge before us today is to so organize our programs of training educational opportunities that Canadian young people, and those that are not so young, may have the opportunity to discover their aptitudes, express their interests, and develop their abilities to the level that they have to wit and the will to attain. Those who have the ability and the inclination must have the opportunity to complete professional training to become our scientists, engineers, doctors, lawyers and teachers. Others will develop technological abilities in a great variety of fields.

Those with interests in more practical things shall have the opportunity to develop their much needed skill for their own and their country's welfare; and such others as require training to perform their jobs in narrower fields will find the training available for them. In so doing we will be developing Canada's most important natural resource (her people) and building permanent foundations for economic growth and national prosperity. These are the things that will be our first line of defence in time of emergency. In time of peace they give us hope of happiness and national achievement.

PART TWO

STAY-IN-SCHOOL - IT PAYS TO GRADUATE

(SERIES OF RADIO BROADCASTS)

The General Problem

(Broadcast by J.P. Francis
Economics and Research Branch
Department of Labour.)

In recent years, many people in Canada have expressed concern that we may be falling behind in the vital matter of building up our supply of skilled manpower.

Of course, no one would claim that education is only a matter of acquiring occupational skills. But it is certainly important that the young people who come out of our school system have, between them, a sufficiently wide range of skills at various levels, so that they will be able to match their training with the needs of employers.

DROP-OUT STATISTICS DISTURBING

However, recent studies undertaken in the Department of Labour indicate that this is not so. They show that a disturbing proportion of our young people are failing to take advantage of even the secondary school education available, with the result that employers cannot meet their needs from the young people who are looking for their first jobs.

ONLY 15 % OF STUDENTS TAKE VOCATIONAL COURSES

The fact is that too many boys and girls are dropping out of school too early. About one-third of all the students who enter elementary schools leave the regular school system with no more than an elementary education -- and in some cases, less. An even greater number leave the regular educational and training system before they reach the junior matriculation level or its equivalent. This means that two out of every three students in the school system at the Grade 2 level will leave before they obtain a junior matriculation standing or equivalent. Only about 15 percent of these people will have been in courses which were vocationally oriented.

STATISTICS

In 1957-58 the total enrolment in Grade 2, virtually the beginning of elementary school, was 396,000. We have a fairly good idea of what the experience of these people is likely to be. 131,000 will leave school before reaching first year high school. 139,000 more will drop out between first year high school and junior matriculation, and 95,000 more will leave between junior matriculation and first year university. 32,000 will enter university in courses leading to a degree.

Let us turn and take a look at the working world into which these students come.

SKILLED WORKERS INCREASE

Generally speaking, it seems that the fastest-growing occupations in industry are the ones requiring a high level of training. In the skilled categories, for instance, it appears that the fastest-growing occupations are those at or near the so-called technician level, -- such jobs as production planners, tool designers, draftsmen, laboratory technicians, and engineering assistants. Between 1949 and 1959 the number of such skilled jobs increased by 38 per cent. In the same period the number of jobs in the semi-skilled and unskilled categories grew by only 17 per cent, if we exclude the service occupations.

AUTOMATION CAUSES SHIFTS IN EMPLOYMENT

It is in this semi-skilled and unskilled area that one of the important effects of technological change is occurring. A rather surprising finding of our investigations was that there seemed to be very few cases of direct layoffs occurring because of technological change, even in cases where relatively large-scale automation was taking place. What was and is happening, it appears, is that many of the effects of these changes are being transferred in a great variety of ways to groups of workers other than those directly involved. When such changes take place, the usual result is for anyone directly affected, who has a skill that is transferrable, or a basic education on which a new skill can be built, to be given a chance to move into another type of job. This general practice, and the effects of seniority arrangements, both tend to shift any resulting displacement to the younger semi-skilled and unskilled worker. That is undoubtedly one reason for the relatively

high degree of unemployment among young people who do not have much education.

TECHNOLOGY ELIMINATES LESS-SKILLED JOBS

Technological changes are not affecting all kinds of semi-skilled and unskilled workers to the same extent. It appears that the machine operator group, occupations with material handling duties, and labourers generally are the hardest hit groups. The great body of assembler jobs has not yet been affected to the same extent.

MECHANIZATION EFFECTS OFFICE EMPLOYMENT

Mechanization in its various forms is also having its effect on office employment. In terms of its occupational structure, the traditional picture of the office has been something like a pyramid. At the top were the senior managerial and professional positions. Below them in the hierarchy were the senior clerical and supervisory jobs. The broad base of the pyramid was made up of a large number of semi-skilled and unskilled clerical workers.

As the volume of work to be handled by business offices increased, this traditional structure was simply extended by adding additional clerical workers and so additional supervisors. Problems of communication and span of control soon began to plague those mushrooming pyramids and Parkinson's 'disease' had set in long before Parkinson's law was formulated. The overall result was that the clerical sector of the labour force grew much more rapidly than the labour force as a whole and this situation was accompanied by chronic shortages of clerical help.

THE IMPACT OF DATA PROCESSING MACHINERY

At the same time, however, and particularly over the past decade, this picture began to change as a result of the use of an increasing variety and quantity of office machinery. Perhaps the most revolutionary development was the introduction of mechanical data processing based on the Hollerith punch card. More recently, the development of electronic data processing has speeded up this trend considerably.

The new equipment and techniques are now resulting in a major breakthrough in the traditional ways of getting office work done. Electronic data processing in particular allows existing paper work, as well as new types of services, to be brought together and handled in bulk. These techniques are having a serious effect on the traditional compartmentalized structure of the office and upon its occupational make-up.

DEMAND GOOD FOR SECRETARIAL EMPLOYEES AND OFFICE MACHINE OPERATORS

Whether or not the overall impact of mechanical and electronic data processing will be an absolute decline in office employment is not clear. There is not yet sufficient research evidence available to tell. It is clear though that there may well be a proportional decline in office employment and that the impact will be a differential one on the several office occupations and on the different levels in the office hierarchy. The middle level supervisory and senior clerical jobs, for example, are going to decline. In addition, much of the routine clerical work, traditionally performed by clerks, will be carried out by machines. On the other hand, there is some evidence to suggest that demand for secretarial employees and office machine operators will continue to expand.

In discussing the job structure of the Canadian economy and how it is changing, the phrase, "technological change" has been used frequently. This is a general term and perhaps tends to gloss over too quickly the more specific and fundamental developments which are occurring both in the factory and in the office.

KNOWLEDGE REQUIRED IN INDUSTRY ALTERED

These can be illustrated in a number of ways. The theory of electronics has gained widespread application in industry and business and has fundamentally altered the type of knowledge required in most electrical occupations as well as in other related trades. The spreading use of the principle of hydraulics in many types of industrial machinery has expanded the need for millwrights and similar types of tradesmen. The growing use of new materials, both synthetic and natural, and the increasing knowledge of the properties of old materials, has virtually sounded the death knell of some traditional occupations such as moulders, while bringing into prominence such fields of knowledge as metallurgy and chemistry and the many specialist occupations in these areas.

EVEN SOME SKILLED JOBS ARE DISAPPEARING

Mathematics, both in the form of logically analyzing production processes and work arrangements, and in its highly specialized applications to product design, has resulted in specialists in the engineering departments of many firms taking over the judgment functions formerly performed by such skilled tradesmen as toolmakers.

Business organization, too, has been changing as many functions such as production scheduling, personnel, labour relations and a variety of engineering and cost accounting services have come to be performed by highly specialized staff personnel rather than by workers in the line organization.

BASIC EDUCATION REQUIRED

Fundamentally, all of these developments have one common element. They have opened up new and complex fields of knowledge or ways of looking at problems which are making it necessary for the workers concerned, to have a considerable amount of basic education on top of which is built a specialized training which provides at least some theoretical mastery and understanding of the specific technical field concerned.

In the working world the skilled and professional occupations are among the fastest growing ones and that they now amount to about 25 percent of all jobs in the country. This means that one out of four of the new workers entering the labour market should be destined for jobs of this type at some stage in their working lives. In fact, because these jobs are growing rapidly, more than one out of four new workers should be equipped to take such jobs or to be successfully trained for them in industry.

What is the contribution of the educational and training system to this need? Of those leaving the system, less than one-third have at least a junior matriculation standing. Less than 20 percent have a senior matriculation standing or its equivalent.

FEW STUDENTS HAVE PRE-EMPLOYMENT TRAINING

On the surface these proportions do not seem to be very much out of line with the need. The picture, however, is not really as satisfactory as these figures would indicate. In the first place, only a small fraction of the young people who secure a junior matriculation standing or better before leaving the educational system, have had any vocational training and so received any pre-employment preparation for skilled or technical jobs.

STUDENTS TEND TO THINK OF WHITE COLLAR JOBS

Secondly, the majority of these students are motivated by the values of our society, to think in terms of white collar jobs rather than skilled trades or technician occupations. If industry's needs for skilled technical and professional workers are not met from the pool of young people coming out of the educational system with at least a junior matriculation standing, how are such workers secured?

GET TRAINING INFORMALLY

Studies have suggested an answer to this question. They have shown that a substantial portion of the competent workers in the occupations covered secured their training in a very informal manner and that many of these did this over the years on the foundation of a general education which was less than junior matriculation or its equivalent.

IMBALANCE BETWEEN JOB PREPARATION AND INDUSTRY'S NEEDS

There would seem to be here, therefore, a rather serious imbalance between the educational and training system and industry's requirements. The people leaving the educational system with the type of training most suitable for work in the skilled and technical occupations are very likely going into quite different kinds of jobs, many of which do not really require that much training. The gap has been made up in a very informal, if not haphazard, way from a group with considerably less basic education. Of course, the gap has also been filled to a very important degree by importing full-trained workers through immigration. These methods of filling the gaps may not be appropriate (or possible in the case of immigration) as skilled and technical jobs grow in number and complexity.

UNSKILLED WORK DECLINING

As was pointed out earlier, about one-third of all those leaving the educational and training system do so with no more than, at best, an elementary education. In other words, they only proceeded as far as Grade 8 or its equivalent in the system, if they got this far, before leaving school. These are the young people who move into the semi-skilled and unskilled jobs. It is undoubtedly true that there will always be jobs of this type to be found, but it is also true that these unskilled jobs are the ones which are

declining relatively in importance and which are most susceptible to the increasing mechanization of industry and business.

The obstacles which these people will encounter sooner or later in the working world are perhaps indicated by the following remark of a personnel manager in a large household appliance firm. He said, "We got many applicants with about Grade 8 education. They have been around a few years as office messengers, janitors, etc. and come to us at around twenty-one years of age. They have nothing to offer. For the good of the company we hire Europeans who have had more schooling and some trades training."

Closing the Door to Training Opportunities

(Broadcast by Roy H. MacCuish, Assistant Director
Vocational Training Branch
Department of Labour, Ottawa)

It is an alarming fact that there is great wastage of human resources in Canada. It is more alarming however from the viewpoint of the individual who drops out of school in grade 7, 8, 9 or 10. He is poorly equipped to face the future as a workman and as a citizen.

In 1951 a study was made of students who had dropped out from school before graduation and the results proved beyond doubt that schooling pays. Within two years of leaving school there was a noticeable difference between the progress of those who dropped out of school and those who graduated. A higher percentage of those who graduated received promotion or raises, and more frequently, wages increased with schooling. Schooling had an influence on employment opportunities. Graduates engaged in a wider range of jobs while drop-outs were more restricted in the variety of positions open to them.

Early drop-outs left jobs more often because the job was temporary or seasonal, because of dissatisfaction with pay or hours or because they were discharged. On the other hand, graduates left jobs more often because of the chance for a better job or because they wished further training.

Those with more schooling enjoyed more rewarding recreations and hobbies, they participated more in group activities and showed more leadership qualities. In short they became generally speaking better citizens.

SOME OF REASONS FOR LEAVING SCHOOL

Young people leave school for a number of reasons. Some because they lack interest in school work and do not keep up their studies. This results in failure and discouragement.

Some leave for economic reasons, such as inadequate family income, or the desire to earn money with which to buy the things that workers have.

Some leave for personal reasons, such as indifference of parents, maladjustment, illness.

DROP-OUTS INCLUDE THE INTELLIGENT

There is a definite relationship between lack of learning ability and school drop-outs but it is not correct to say that all of the drop-outs are caused by lack of learning ability. Unfortunately, 25% of those who are above average in learning ability drop out before graduation. Sixty per cent of those with average learning ability drop out. Eighty-eight per cent of those with below average learning ability drop out.

In later years the school drop-out invariably regrets his lack of education and sees the error of his teenage decision but usually it is too late to correct the situation, although more and more facilities and programs are becoming available for education or training of adults.

It is sometimes difficult to convince high school students of the value of the subjects they are studying and at times we are inclined to say that the decision is his, let him suffer the consequences.

It is the duty of parents and teachers however to watch, during the critical years in grades 9, 10 and 11, for the danger signals which indicate the possibility of dropping out, and whenever possible to remove or at least reduce the danger spots. We can't leave the

PARENTS SHOULD WATCH FOR DANGER SIGNALS

responsibility to the young individual and let him suffer the consequences. He is needed and he will be needed in the future with his abilities and aptitudes developed to the full. High school graduation is becoming more important each year to the young person entering the world of work.

SCHOOL AND INDUSTRIAL TRAINING RELATED

Unfortunately, many young people, and I am referring to boys in particular, think that there is no relationship between graduation from high school and success in a skilled trade. There most certainly is such a relationship and it is becoming closer and closer each year as our industries become more technical, as our methods of construction, production, maintenance and service become more complicated, and our skills become more dependent on science, mathematics and other related subjects.

THE "HARD WAY" IS REALLY HARD

It is possible to point to successful tradesmen, to contractors, to managers, or to business men who have not completed high school. And teenagers are sometimes inclined to do so in order to make their criticism of high school reasonable and valid. They use such cases to justify their desire to give up school and go to work. However, these successful men, in nearly all cases will be the first to regret not having completed high school and to admit to hard work and study on their own to make up their deficiency in later years.

STANDARDS FOR TRAINING RISING

Some trade schools and apprenticeship programs will accept jobs with less than high school graduation in semi-skilled and skilled occupations, but this is not an indication that short term training or even a longer apprenticeship is a substitute for high school education. More and more trade schools and apprenticeship plans are requiring high school graduation as a pre-requisite, and more and more employers are asking for high school graduates to fill their vacant positions.

Industry needs many unskilled and semi-skilled workers and operators, and these jobs will always be open and available to applicants with less than high school graduation. But competition

COMPETITION HIGH FOR UNSKILLED JOBS

for these jobs will be stiff because requirements are not very high and the training periods are relatively short. These are the jobs for which there is usually a large supply of applicants; the jobs which offer the least security and permanency; and the jobs in which the possibility of promotion is not as great as in the skilled trades.

GRADUATION AFFORDS WIDER CHOICE

The high school graduate has a much greater range of occupations from which to choose his life's work. He has the educational background to undertake upgrading training programs provided by industry or governments which lead to positions of greater responsibility, permanency, personal satisfaction and salary.

WATCH FOR THE DEAD-END JOB

It is unfortunate when a boy with average or above average learning ability and mechanical aptitude leaves school before graduation to take employment in what may, at the time, appear to be an attractive and good paying trade only to find in later years that he is on a dead end street. Very often in later life the sacrifices are too great to retrace his steps to get on the throughway to success and the realization of his ambitions and the full use of his abilities.

What is there about high school graduation that is so important to success in an industrial occupation, especially in the skilled trades? Why do so many jobs require high school graduation? What difference will one or two more years in high school make in me? These questions are sometimes difficult to answer to the satisfaction of a teenager who is losing his interest in school and who is offered a good paying job.

SCHOOL DEVELOPS GOOD WORK HABITS

In the first place high school graduation separates the men from the boys, as the saying goes. It is the qualifying round for the main event. It indicates that the graduate has the ability, the drive and ambition, the self discipline, the fortitude to continue and to finish the course. These qualities of character are important in the world of work, and they will remain with him to help him over future rough spots.

EDUCATION FOUNDATION FOR FUTURE DEVELOPMENT

Of course there are circumstances which may make it necessary for a boy to leave school before graduation even though he possesses all of these personal characteristics, while on the other hand some high school graduates may be somewhat short on one or more of them. We all know of some such cases but as a general rule high school graduation is an important milestone, and an accepted standard of achievement. But high school is not just a testing ground for personal characteristics of stamina and ambition. Of much greater importance, of course, is the educational background and development which is the foundation upon which all future development takes place.

NEED LANGUAGE, MATH AND SCIENCE FOR SKILLED TRADES

It has been said many, many times that the three basic requirements for apprenticeship and training in the skilled trades of industry are language, mathematics, and science. Oral and written English or French is the means of communication between us. If we cannot express our ideas and opinions so they are understood by others they are useless. If we can't read and interpret oral and written instructions, or if such instructions are not given in clear understandable terms we will suffer many costly mistakes and waste a great deal of valuable time. The study of mathematics is of particular importance to skilled tradesmen and technicians who wish to proceed to positions of responsibility and supervision. It is the basis of all calculations, layouts and estimates. Without a sound foundation in mathematical fundamentals it is extremely difficult to proceed with the advanced mathematics now required in industry.

Science teaches the principles upon which our methods and processes of industry are based. Progress in skilled trades and technical occupations depends upon a knowledge of why a process is carried out in a certain way as well as how it is done, and as more and more technical changes take place such knowledge becomes of ever greater importance.

Most high school students want the best out of life but some want it too quickly or too much at one time, with the result that the long range view of life is blurred or hard to understand.

SHORT CUTS NOT ALWAYS ROADS TO SUCCESS

They must be convinced that short cuts are not always the best roads to success; that real success and personal satisfaction, as well as material gain, comes from full development and use of their individual gifts of intelligence and aptitudes.

All of this is important to the personal satisfaction of the individual, but it is necessary for all of us, parents, teachers, friends, to inspire young people to feel that they have an obligation to develop and use their gifts of intelligence and aptitude for the good of society and their fellow men. This concept of duty is one that modern society needs more than ever before.

Jobs and Education

(Broadcast by C.A. L. Murchison, Commissioner, Unemployment Insurance Commission, Ottawa).

I would like to have the attention of the boys and girls of school age, for the purpose of giving them reasons why they must acquire a good education if they are to prosper in and enjoy the world of work into which, in due course, they will enter.

Indeed, it might be a good thing if the parents of those boys and girls would listen to this message, because the "mums" and "dads" have the inside track on all of us when it comes to influencing their sons and daughters to continue with their schooling.

You have been told that I am a member of the Unemployment Insurance Commission and that the Commission operates the National Employment Service, the Service which finds jobs for workers and workers for jobs. We have been in business for seventeen years and during that time over 16,000,000 placements of unemployed Canadians have been made by our people. With this record in mind, I am sure that you will appreciate that we have acquired considerable experience in operating the Employment Service and in learning about people.

JOBS FEW FOR THE UNSKILLED

We have noticed, over the years, that people with very little education find it much more difficult to secure and hold jobs, than do people with a fairly good formal education. It has also been well established that the poorly educated worker is forced into those unskilled, lower paid occupations and, quite frequently, into seasonal industries where workers are often laid off and in which there are more people looking for work than there are jobs to be filled.

GETTING AND HOLDING JOB RELATED TO EDUCATION

In 1955, when jobs were plentiful, two out of three of the unemployed had not gone beyond Grade VIII in school and, at the same time, we found that the average education of those who were working was much higher. It is therefore easy to see that people with only Grade VIII are more often out of work than are those who have attended some form of secondary school. This much is certain - the more schooling you have, the better will be your chances of securing and holding a job.

No doubt you have read in your history books the story of the industrial revolution in England. It was then that people broke into factories and destroyed machines which the owners had installed. Those rioters committed the destruction because they believed that, if the machines produced the things that they had formerly made with their hands, there would be fewer jobs. Well you remember the story how it continued to relate that the owners of the factories and of the machines had the courage to go back and build them up again - and when they were re-built it was found that those machines created new jobs with which people were able to make new things, and more things. And as a result everyone benefited.

NEW LEARNING COMES EASIER FOR EDUCATION

More and still more machines are being designed and produced for use in industry today. Some of them are complicated gadgets and considerable skill is required to operate them or, rather I should say, to keep them going. Special training is required to fit people to look after them, and I am told that the people who are selected to take training are those who have a good formal education. Remember, the more schooling you have, the more easily you can learn new things and new skills.

It is important that you train your mind in such a way that it will quickly grasp new ideas and new methods. Do you know that 50% of the things produced today were not heard of 50 years ago? And they say that, in 25 years from now, half of the goods then being produced will be of types unknown to us today. Just a short time ago I read that 50% of the drugs now being produced were unknown at the outbreak of the Second World War - and that's just nineteen years ago. People with initiative and imagination are creating and designing new gadgets and goods for which demands are readily available. All this is done to increase our ability to compete in world markets, to assist in the growth of Canada, to create more jobs and to raise our standard of living.

NEED PEOPLE WITH IMAGINATION, INITIATIVE

This shift to what many call automation, has imposed new and exacting demands. They call for higher qualities of leadership and direction and there will be a greater need than ever before for people who possess special skills. These special skills can be acquired only through appropriate training - and experience has shown that the information provided in courses of training for this purpose is more readily understood and assimilated by those who have a good academic background. To do your best in your future job, you must do your best now. Make the most of your schooling; take advantage of every opportunity which presents itself; learn all you can in school. You will find that at some time during your working life you will use all - all - that you have learned in school, and the farther you advance in your working life the more you will be called upon to rely on your formal education - what you learned in school.

YOUR FUTURE DEPENDS ON DOING BEST NOW

We are aware of the existence of temptations which lead young people to wish to leave school. Earning money and feeling grown up may seem more attractive than obtaining a good education. And perhaps some students find school discipline a bit tiresome.

LOOK AHEAD

Earning their own money may look like true independence to the sixteen-year-olds; the chances are that they are working in some unskilled temporary jobs which do not pay too well and do not last for any reasonable length of time. To such young people may I suggest that they ask themselves whether they would be content with those unskilled jobs ten years from now, when they would be 26 years of age. I am sure that their answers would be definitely "No". Well, let me make a prophecy in respect to them and it is that the chances are that they will be in some kind of unskilled occupation ten years from now, if indeed they are employed.

GOOD WORK HABITS DEVELOPED IN SCHOOL

I wish you to know that business and industry have disciplines which they exert over their workers and the discipline exercised over you in school, if you properly accept it, will stand you in good stead when you go to work. Failure to pay attention to school discipline may result in failure in examinations, but failure to pay attention to the disciplines exercised in business and industry may lead to loss of employment. The student who pays attention in school will get to know how to pay attention in business.

Here are a few facts which you should know. They affect you, each and every boy and girl of school age:

THE BARE FACTS ABOUT EDUCATION

The more schooling you have, the quicker you will find a job.

The more schooling you have, the better will be your chances for keeping your job.

There will be a greater choice of jobs for you and, moreover, the chances are that you will have a better chance of getting the right job, the one that suits you.

The more education you have, the more easily you can learn new things and improve your skills.

Education is the key which opens many doors. Through it you can win prestige and self-confidence.

Education develops your imagination and improves your abilities to form judgment.

CANADIANS LACK SKILLS AND SCHOOLING

Since World War II over a million people have come to Canada from Europe. Some of the immigrants who were destined to enter the labour force, in fact most of them, were carefully selected by officials of the Department of Citizenship and Immigration; and I might add that several officers of the Department of Labour, and of the National Employment Service, spent some time overseas assisting the immigration officials in the selection work. These government representatives were instructed to invite, from among the Europeans who applied, those who possessed the special skills which were needed in Canadian industry. The reason for this was that there were not sufficient Canadians who possessed the required skills at the time.

If you were to go through a factory, or the premises of some other establishment today, you would find large numbers of our new Canadians occupying jobs requiring highly skilled workmen; and you would also find many natural born Canadians in jobs of lesser importance. Now, while we have welcomed and will continue to welcome newcomers to Canada, and while we appreciate the services which they are performing in this country, we think that it is most unfortunate that so many native born Canadians have failed to prepare themselves for the better jobs. One very important reason for their failures is that they lacked sufficient schooling to enable them to learn the more difficult skills.

AIM AT MATRICULATION

You can help Canada to remedy this situation by staying in school until you have, at least, matriculated, and thereafter by being prepared to learn skills which will not only help Canada but also yourselves. You will be helping yourselves because you will receive a higher rate of pay for your work and will thereby acquire a better standard of living.

PROMOTIONS GO TO THE EDUCATED

The personnel manager of every manufacturing establishment, of every bank or other business undertaking, when selecting new employees is always on the lookout for people who show some potential for advancement in his organization; he knows that it costs his company money to train new entrants and that it is an economic advantage to his company, if he can select people who stand a chance of being promoted. He knows from experience that a poorly educated person stands little or no chance of promotion and he will therefore select the people with good academic training, even in the case where the first job is not a difficult one to undertake. Well now that you know this, will you not agree that it is right for you to go as far as you possibly can with your school work?

ASSISTANCE FROM NATIONAL EMPLOYMENT SERVICE.

The National Employment Service cannot force any employer to accept every person sent to him by the local office, but our officers know that a well educated, well trained applicant, stands a far better chance of being accepted by the employer than one who has failed to acquire adequate schooling.

If you are in any doubt about the extent of academic training you should acquire, I would suggest that you consult one of our employment officers in your community's local office. He would, I know, be pleased to help you.

A MESSAGE TO STUDENTS AND PARENTS

Broadcast by Ira G. Needles, member of the Executive Council of the Canadian Manufacturers' Association, Chairman of the Board of Governors of Waterloo College Associate Faculties, and Chairman of the Board of Directors of B. F. Goodrich Canada Ltd.

Thousands of boys and girls are right now thinking about school. Shall I keep on going to school or shall I quit and get a job?

How far should I try to go in school, how far can I afford to go and even more important can I afford not to go on?

DON'T BE INFLUENCED BY FRIENDS

You are at a time of life when your decision can mean a great deal to you for the rest of your life since you are now at the age when learning comes faster, when the mind absorbs the training of education more readily and now is the time to decide. You will probably hear a number of your friends say that they are not going to continue and perhaps you are toying with that idea yourself. If you are then I ask you to consider very carefully and seriously all the problems involved not only in getting a job and holding it but in progressing upward on the ladder of success that leads to the greatest earning capacity and the enjoyment of the fruits of accomplishment.

PLANNING A CAREER IS IMPORTANT

Perhaps you will agree with me that it is not nearly so important to know <u>what</u> you are going to be as to know <u>who</u> you are going to be and where you will stand among your fellow men and women. It is less important to know <u>where</u> you are going to work or at this time of life even to know what work you are going to do than it is to know <u>how</u> you are going to work and what training and equipment you are going to secure in planning for your own life development.

I am speaking to you on behalf of the Canadian Manufacturers' Association, an organization which represents most of the business and industry of Canada. Manufacturing industry is the largest employer of people today and if your are considering a job at present, the chances are that it is in the industrial or business field. That is why I strongly recommend that you discuss your education or work plans with as many people in as many varied positions and professions as possible **before** you make a decision that may close many doors to progress for you. While progress is important, do not try

DISCUSS YOUR EDUCATION WITH OTHERS

to progress too quickly in your chosen field after you leave school. After all, the average man looks to a period of some 45 years for a career and it is better to spend a few more years in educating yourself now in order to progress further in the long run.

EDUCATION HELPS YOU TO ADVANCE

A friend of mine in school was a young man who was a good but not a particularly outstanding scholar. He finished a liberal arts course and started working in a family company but was forced to move south for reasons of health. The only job he could find was the rather menial task of unpacking china from straw packed crates in the basement of a five and ten cent store. He persisted in his work and soon was on the floor selling. From here he rose to assistant manager, manager, area supervisor, vice-president sales and today he is the president of his firm. He had to come up the hard way, but without a strong foundation in his education program he could not have reached such a high and responsible position in the retail field. The earlier you begin building the foundation for education the better.

Think back for a moment to grade seven. Do you remember the children who went to school with you in grade seven? Are most of your grade seven class-mates in school with you today? The answer on a national basis is NO. It is a most unfortunate fact that nearly two-thirds of the pupils in grade seven drop out of school before their high school education is completed.

QUICK MONEY NOT EVERYTHING

As a matter of fact, only three or four students complete university for every 100 students who begin school in Canada. Why should you stay in school? It is quite possible to leave school at a comparatively early age and earn what appears to be princely sum of money. However, you must consider your future earning power and what might be a large weekly wage for a boy of 17 will not go very far for a man of 35 who has a wife and family to provide for and a home to buy.

It is a proven fact that education is an important investment; a sound financial investment that will pay dividends in both money and personal satisfaction. Naturally, you are interested in the future and have likely asked yourself many times what your life will be like two years from now.

An important education research committee made a study of a large number of Canadian students. One group had dropped out of school, the other group had graduated from high school. Here are a few of the things the committee found that had happened in the lives of students two years after they left school. The graduates were earning more money; about 17 per cent more in take home pay than those who left high school in the lower grades. The high school graduates had received more raises in pay and had earned higher amounts. Those who dropped out early had been given fewer promotions and had less chance of being promoted to higher paying jobs in the future. Anyone will tell you, in your own best interest, to get as much education as you can if you want to earn the wages that are paid for more responsible jobs.

GRADUATES EARN MORE MONEY-DROP-OUTS GET FEWER PROMOTIONS

The committee report also pointed out that high school graduates suffered less unemployment and were more satisfied with their jobs than those who dropped out of school. The amount of your schooling even covers your enjoyment of living. It was found that those with more schooling had more hobbies and recreations, they belonged to more clubs and associations and they held more elected offices in these groups. In short, they were getting far more fun out of life by staying in school a couple of years longer. They are happier people, better citizens, enjoy more security, have better opportunities and are earning more pay. In no uncertain terms education pays for itself over and over again. Your initial objective is to finish at least your high school.

EDUCATION PAYS FOR ITSELF

A man of my acquaintance in industry completed his high school education and chose not to go on to university but went to work in a large industry corporation. His hobby was chemistry and he read everything that he could lay his hands on dealing with chemistry and its related subjects. His hobby carried him forward within his company until he became president of a large chemical corporation.

He is one of the exceptional few who without benefit of higher education but with the training and inspiration obtained in high school has moved up to an important position in the world of business and industry.

QUESTIONS TO ASK YOURSELF ABOUT JOBS

Possibly you held a summer job and have enjoyed the particular work so much that you are thinking of quitting school and stretching your summer job into a career. Will the job responsibility let you earn enough money to keep you happy two or three years from now? Is it the sort of job you want to spend the rest of your life doing? Can you see a rapid succession of promotions in the future? Is the job stimulating enough to challenge your full mental capacities? You are the only person who can answer these questions honestly and intelligently. There is another most important consideration to be given your educational requirements.

FUTURE HOLDS PROMISE FOR GRADUATES

Because I am speaking to you as both an industrialist and one of those connected with the development at Waterloo College, I can assure you that opportunities in this technological age are unlimited. The future holds rich promise for those of you who can progress in scientific, mathematic and electronic fields. Within your own lifetime you have seen the emergence of television, jet power guided missiles, rocket propulsion and atomic energy. The world needs well educated young men and women to continue these advances.

DON'T CHOOSE THE EASY SUBJECTS

Not all of us are adaptable to every type of education. The thing to remember is that all training of the mind is important. Just as we train our muscles to build stronger, healthier bodies on the athletic field, so we should train our mind to respond to the tough jobs, the challenging opportunities which will confront you in your chosen career. There is no limit to the amount of knowledge and education the mind can absorb. The more you use your mind the stronger it grows. Do not always settle for the easy courses in high school; be prepared for the tough competitive battle of life which will greet you in the outside world.

SUBJECTS ARE RELATED TO WORK

The student who is inclined to favour technical subjects such as science and chemistry and who hopes for an engineering career may not find history particularly easy but an engineer needs some of the more cultural subjects such as history, literature, composition and training in public speaking to perform the very best job of which he is capable. It is equally true that the cultural professions of teaching, music, ministry and writing require the mental training which come from science and mathematics.

DON'T DROP SUBJECTS WITHOUT GOOD REASON

Please don't think that you have to be an Albert Einstein or a Thomas Edison to reap the benefits of this nuclear age. It is certainly true that Canada needs engineers and a portion of the Waterloo College program centres on the continually increasing need for highly qualified engineering students. There are also technical opportunities, for both boys and girls, at a wide number of institutions as well as advancement possibilities within industry itself. But a very necessary pre-requisite to these opportunities is a full high school education. Don't be too quick to drop optional subjects in high school. Chemistry and higher mathematics are vital to the engineer and scientist just as Latin is necessary for medicine, and home economics is important for the future housewife. In Canada, with our two historic tongues of English and French, we have a fine opportunity to study and practise a second language. As communication brings all of us closer together, the need for learning French is more apparent.

Your parents must assume part of the responsibility to provide every possible means and encouragement to keep you in school; it is an investment in material gain and mental well-being. More than ever before, business and industry need well educated young people. Not every success comes from the industrial or business fields. An acquaintance of mine decided early in life that he would devote his working years to social service. He was a moderately good student, worked his way through university by waiting on tables in the cafeteria and by working in the college bookshop. He was an outstanding athlete and his desire to serve his fellow man through social service and his athletic ability led him naturally to the YMCA where after a series of secretaryships in widely scattered communities he became one of the top officials of this international organization. The background of mental training and development which he received in university led him to go further in his chosen field than he would have done without university.

FIELDS OF WORK OUTSIDE BUSINESS SPHERE

The cost of attending college or university may not be beyond the parents' financial capacity. There are more scholarships, bursaries

BURSARIES AND SCHOLARSHIPS AVAILABLE

and employment opportunities on a part time basis available now than ever before. Parents should take the time and trouble to talk to the child's school officials, join the home and school association, learn as much as possible about employment opportunities and needs in the locality and above all, take a deep interest in the subjects and work of the student at school.

With your guidance, as a parent, children and young people will begin to realize that educated people are the ones who will benefit in this technological age in which we dwell. There will always be people who work to live and there will always be others who live to work. It is my earnest hope that your child will live to work in a fascinating adventure of progress which will be the world of tomorrow.

URGE CHILDREN TO PREPARE FOR TOMORROW

In conclusion, may I ask you to urge your son or daughter to prepare for tomorrow by seeking education today. Keep the pathway open, do not set aside the courses needed for university. Meet the challenge of the high school subjects which will train the mind most capably and will keep the future possibility of going on to university always open. The pathway is rough and strewn with obstacles but the stakes are high and worth fighting for.

SECTION TWO "IT PAYS TO GRADUATE"

Equipping Oneself for the World of Work

Broadcast by I.W. Ford, Staff Superintendent, T. Eaton Co. Ltd., Toronto.

The human mind will always be more amazing than its most wondrous creations. Our vast, dynamic, exciting world, our world of swift radio and television, our world of electronic brains which retain nearly as much knowledge as we ourselves can store in the networks of memory -- this enormously complicated fabric of modern living was woven by human knowledge. It did not just happen: man made it. You, the young people of today, were born to this heritage of wonders. Perhaps you take them for granted. And perhaps you are already dreaming of more and greater wonders of your own making. This is as it should be. A few generations ago, young men and women felt quite daring when they drove an automobile at the frightening speed of thirty miles an hour; but in the near future some of you, in the same spirit of adventure and discovery, may thrill to the speed of a passenger rocket on its way to the moon.

KNOWLEDGE KEY TO MODERN DEVELOPMENTS

The difference between the age of the piston engine and that of the guided missile is not that a little intelligence was applied to the problems of internal combustion and a great deal of it to the study of jet propulsion - the difference is, very simply, that we have more knowledge today than man had at the turn of the century. Some of you will likely play a part in shaping the future, but you cannot do so without the knowledge our world can give you in its institutions of learning.

COMPLEX WORLD AWAITS GRADUATES

I am trying here to stress a vital point, or rather a vital question you must ask yourselves: What kind of a world awaits me when I leave school? Obviously, it will be a world of great complexity, not only because of the variety of its tools for communication, computation, fast transportation or effortless living, but more particularly because of the involved social and economic relationships these tools have created. We know that primitive man had simple tools and simple

tasks to perform. His communal life did not require of him more knowledge than he could gain through self-activity. What he had to know, he learned by doing. Yet, even then, a few men who were thought to know more than the others were honored as ministers of the gods or feared as wielders of punishments. And, as knowledge was found to give those who possessed it some exclusive privileges in the community, it was carefully guarded by the ruling class.

How much greater, then, is the power of knowledge in modern societies, with their vast networks of institutions, their incredible array of production tools and machines, their sophisticated systems of trade and banking! Think of the number of skills that are needed to operate even a small modern industrial or commercial concern.

STICK TO YOUR GUNS

Where do we get the competent men and women who will ensure the continuity and growth of our organization? From our high schools and colleges and universities. We, like other important business organizations throughout Canada, have a great stake in education and urge you to go on with your studies, to learn as much as you can from your teachers, and to stick to your guns until you graduate.

DROP-OUT PROBLEM

I trust my frankness with you will find an echo in your frankness with yourselves. Are you equipped today, at this very moment, to face the challenge of a career with adequate weapons of mind and character? Are you ready to achieve recognition in your field? Do you now have enough knowledge, or better still, do you now have enough intellectual skill to find your place and hold it in the complex world I have tried to describe to you? If I ask you to ask yourselves these questions, it is not that I am skeptical about your intelligence, your resolution or your courage.

What is truly alarming is the fact that, according to the Department of Labour, more than 100,000 young Canadians will leave school this year, some with only Grade-8 standing, others mid-way through their secondary studies, others (38,000 of them) before reaching senior matriculation. This is a matter of grave concern to all those in the business world who know the urgent, pressing need for higher education. We should like to know why so many of you are giving up, prematurely, your opportunities for learning.

DON'T BE LURED AWAY BY MONEY

Some students must leave school because of necessity. Others, and they are by far the larger number, are not forced into this position by circumstances; they do not have to give up because of financial considerations; they do so because of a glittering illusion -- the prospect of immediate earnings. Wanting to earn your own living is a natural and respectable ambition. But listen to the words of one of Canada's largest banks. "Many a youth", says the bank, "has been lured from school with only a part education. In terms of immediate physical satisfactions the importance of getting promptly on a payroll seemed compelling. After a few months the youth learned that his was a dead-end job. His knowledge fell short of what was needed when the test came for promotion. He learned with some shock that no escape had so far been found from the established discipline of education".

There is little I could add to this typical case history. The over-eagerness of some young people to go to work, to fight it out on their own, is often dictated by their faith in the image of the self-made man. What they fail to understand is that no man can be self-made in our complex, demanding, ever-changing world unless he has a rich background of knowledge and training in which his personal qualities can mature and develop.

STUDENTS QUESTION VALUE OF SUBJECTS

Others, of course, may want to leave school, not in their anxiety to earn a living, but rather because they question the usefulness of what they are learning in the classroom. What, they want to know, is the practical purpose of a general education? When does a business executive actually use what he learned in high school or college? Does he require a basic knowledge of physics to make sound, fruitful decisions? Or of history? Or of language? The answer is that he does, even when he is not aware that he does. Clear expression, for instance, is an essential element of clear thinking. The most valuable asset of a successful executive may be his ability to use language with clarity, precision and conviction. We should always bear in mind that the entire structure of society, and not only the structure of the business world, rests on language, for without it we should be walking as strangers among strangers, forming senseless noises in our mouths instead of the meaningful words that make human intercourse possible.

LEARNING DISCIPLINES THE MIND - DEVELOPS ABILITY TO REASON

But there is another, and important, aspect to this question. Even more valuable to you than the practical application of knowledge is the very discipline of acquiring knowledge. The more we learn - (and we keep learning throughout our lives) - the more points of reference and comparison we store in our minds for associative thinking. This is a case where the thing learned is less significant than the process of learning it, - for education, which implies knowledge, is not knowledge alone but something more, just as a square is more than four lines of equal length.

I know this is difficult to express simply. The educated man is obviously a man of knowledge. But most of all the educated man has mastered the mental skills that enable him to discover new associations, new meanings, new kinships in the world of ideas. This is commonly called creative thinking. And this peculiar ability to evolve fertile ideas from even the most tired, impoverished, arid common-places is what differentiates mere knowledge from education itself. The uneducated mind would not derive the principle of gravitation from the fall of an apple and it could not suspect the properties of radium from the streaked emulsion of a photographic plate forgotten in a desk drawer. In the learning process, as we all know, the mind does not merely absorb facts -- it develops an ability of its own to acquire new knowledge and to link it with past experience. The difference between education and knowledge is immediately apparent in all forms of physical activity which require muscular co-ordination.

The golfer who slices every ball off the tee may know that he is stroking the ball from the outside in, causing it to spin off course. His knowledge is of little avail. Yet, the same golfer, after the discipline of supervised practice, is able to hit the ball quite straight without ever thinking about the way in which he does it. He has transformed his knowledge into behaviour; he has <u>educated</u> his body to obey the commands of his brain.

NO SUBSTITUTE FOR LEARNING

Do not concern yourselves, therefore, about the practical value of what you learn. Your power to reason, to structure your thoughts, to derive logic from chaos, will grow in direct proportion to the knowledge you acquire. There is no substitute for the discipline of

learning; nor will there be any way, later in life, to compensate for your failure to learn while you are young. The lack of a good education (and I do not mean good manners) reveals itself, sooner or later, in our inability to adapt ourselves to the changes that take place in our environment, in our complete reliance on a set of pre-fabricated solutions to the vastly different problems we are likely to face in the course of our lives.

In this sense, the uneducated man or woman is very much akin to the oyster, which has only one set of muscular movements to ensure its own protection. But it is the very dignity of man, and also his passport to survival and growth, that he can find in his disciplined brain and nervous system an almost boundless supply of answers to the varying circumstances which may threaten him, challenge him or please him.

All this, of course, is elementary enough, but it suggests that we cannot escape the educative process without hurting ourselves, without depriving ourselves of the knowledge, the skills and, most of all, the wisdom and resourcefulness we need to gain recognition among our fellows.

TRAIN TODAY FOR THE CHALLENGES OF TOMORROW

The physicist Oppenheimer remarked some time ago that man had learned since the beginning of recorded history. There is in this statement of truth something at once exhilarating and frightening. For if some men in our time have doubled the sum of human knowledge, doesn't it strike you that by the same token, they have doubled the sum of what other men have to learn?

Here, then, is the challenge. Your only chance to meet it successfully is to meet it with the best weapons that education can provide. Now is the time to train for the challenge -- tomorrow will be the time to prove your mettle. And remember these simple words, from a man whose responsibility it is to find the right people and assign them to the right tasks -

The longer you stay in school, the less time
you will have to stay in a beginner's job!

NO SHORTCUT TO SUCCESS

There is no short-cut to success. The higher you go up the scale of learning, the higher you can place your hopes for the future.

GRADUATES HAVE WHAT EMPLOYERS WANT

Broadcast by W.L. Sutherland, General Personnel Manager,
Massey-Ferguson Ltd., Toronto.

To those of you who've decided to leave school this year and become wage earners -- or to those of you who are perhaps toying with the idea -- it might be useful to find out first just what's going on in the mind of the person who will interview you when you apply for employment ... the fellow on the other side of the desk who assesses what sort of money you should earn; what job you should be doing; and potentially what sort of career is in store for you.

LEVEL OF EDUCATION JOB CLINCHER

You've probably never met him before and he's never met you, so about the only thing he has to go on, apart from your general appearance, bearing and attitudes, are your educational qualifications. It probably sounds like a very impersonal way of judging an individual. Nevertheless, your educational qualifications will likely be the final clincher to your finding an adequate job.

Let's look more closely at the attitude to education found in the employment of personnel by a manufacturing company such as the one I represent. I should preface my remarks by pointing out that the employment factors I discuss are basically standard in all large industrial concerns.

COMPANIES HAVE LONG-RANGE TRAINING PLANS

One of the major problems and most significant tasks in industry is that of recruiting well-qualified personnel. This is true at most levels and in most areas of the industrial organization. It is particularly true in the employment of young people who are expected to assume the basic jobs in a company -- and, more important -- who are employed with a view to eventual promotion within the company to supervisory or senior positions. This is basic to a company's long range plans for staff development, and this is where an applicant's educational qualifications become a factor, with preference generally being given to the applicant who possesses a minimum of a high school graduation.

THINK AHEAD BEFORE QUITTING

It's difficult, perhaps, for young people to appreciate the effect leaving school before graduation can have on their careers in business and industry later on. But it would pay them to sit down for a few minutes and ask themselves two questions before deciding to make their pre-graduation entry into the business world. They should ask themselves: One -- what effect will this have on the kind of work I can expect to obtain? And, two -- what effect can this have on my long range potential for work of interest, responsibility and greater earning prospects?

These things may seem a little remote now, but in a few years' time, when the student of today is faced with the hard, economic facts of tomorrow, such matters are very close to home.

The answer to question number one is very simple -- no matter what course the person has taken and no matter what type of work he applies for, he will NOT get the best job open. In fact, in the area of office and clerical functions, he may not be considered employable at all.

COMPANIES HIRE FOR THE FUTURE

There are, of course, a great many junior jobs which do not require high school level of education. However, and this refers to question number two, we, like most companies, do not hire just for today's immediate needs. We hire with long range promotion prospects in mind, and with emphasis upon the applicant's potential to assume increasing responsibility. In other words, we must have people who can grow in and with the organization.

GRADUATES HAVE INSIDE TRACK

One of the chief factors in establishing this growth potential is education. This is not to say that every student who leaves school early is incapable of growth in his job, or other jobs, but, generally speaking, the high school graduate possesses a sound indication of three qualities most significant in determining advancement in industry: (1) basic skills; (2) ability to learn; (3) persistence (or ambition).

Let's look at these three factors one by one as they relate to a person's job and career in industry.

GRADUATES BASIC SKILLS

First, Basic Skills: The graduate has proof of ability to absorb and apply specific skills be they in the use of language, mathematics, accounting, machine ship practices or electrical repairs. With the graduate, we, in industry, know what he has covered -- that he has qualified for certain basic standards and that he can use these skills.

GRADUATES HAVE ABILITY TO LEARN

Now we come to - Ability to Learn: One of the chief qualities of a promotable employee is his ability to acquire and retain new skills, ideas, and master new problems. A high school graduate has proven that he possesses this ability. Once again, I say that a person who leaves school early is not necessarily completely lacking in this quality, but from the point of view of the hiring company, a graduate has proven he possesses it. The non-graduate has not done so, or only to a limited degree.

GRADUATES HAVE SHOWN PERSISTENCE, AMBITION

And finally, there's Persistence or Ambition: We understand that the student is exposed to a great many temptations luring him to leave school. The chance to earn money; to acquire a degree of independence; a car; new clothes, etc. All of these are real magnets to a young person who has spent 9 or 10 years studying with limited funds with what appears to be a long time still remaining before he can enter the world of wage earners. The young person who stays on until he has at least finished high school has demonstrated a degree of persistence and ambition. He has been exposed to the temptation of immediate reward for his effort but has retained his goal of finishing his education, realizing the long range returns for his investment of time while still young.

To summarize then, the high school graduate is going to get the better job to begin with, not because the skills he has are necessarily of immediate use in his job but because he has skills and attitudes that will be basic to his future promotion and growth in industry.

DROP-OUT LOSES TO GRADUATES

Day after day in companies throughout Canada, the applicant who left school early is losing out to the one who graduated. As an example of this, let me cite one instance in my own recent experience. A boy applied for an opening at Massey-Ferguson. He was out of high school two years, having left in the middle of grade ten. In that time he had held three jobs -- beginning as a warehouse clerk and being laid off, then going to another job involving accounting clerical work, then going to yet another. In both latter situations the reason he left was that he could see no opportunity for promotion and, even when a vacancy for promotion did exist, he was being by-passed.

He arrived subsequently on our doorstep in response to an advertisement. He had the necessary experience for the job that existed and he appeared to be basically a bright individual. But we were hiring for potential and there was nothing in this applicant's scholastic or work record to assure us that he had any. The ending to this reminiscence is very brief and simple. The job went to a high school graduate who, admittedly, didn't have the clerical experience of the other boy, but whose education suggested that he possessed far more potential. These days, companies are seldom prepared to give -- as they used to say -- someone a chance, certainly not when they can also take their pick of applicants with the necessary qualifications.

NON-GRADUATE COMPETES FOR DEAD-END JOBS

Mind you, in some areas of industry, the non-graduate can find employment. Generally this is work involving physical labour, or work of simple basic skills, which can be learned easily and quickly. The young person entering such a job can realize an adequate income -- for the time being. However, his chances of moving into the supervisor or specialist ranks of employees are rapidly decreasing.

LACK OF BASIC KNOWLEDGE HOLD DROP-OUT BACK

Now you may ask, does not the experience gained in his work make up for his lack of education? It certainly does, but to a limited degree only. The training he has will most likely be in a relatively narrow field -- he is not adequately prepared to cope with the fields opened to the person with a broader background. He will still lack the basic skills in such things as higher mathematics, English,

science or other technical skills. Furthermore, he probably will not possess the basic training in the organization of his ideas and study habits to quickly master a new and more complex set of functions.

CAN GET AHEAD BY PART-TIME STUDY

Is there any way in which the non-graduate can progress in a company? Generally speaking, he is limited unless he follows additional schooling in his spare time. But this takes a lot of time and requires greater effort from the student than when he was young and had full time to concentrate on study. This is a partial solution but how much better to start with basic graduate qualifications and enlarge upon them with special studies of a technical or general nature. Remember, the rest of the field is 'way ahead of you and it's hard to catch up.

TECHNOLOGICAL ADVANCES HAVE BROUGHT CHANGE

What has brought about the state of affairs where a high school graduation is vital to success in industry? Those of us who were acquainted with industry prior to the last war, or even more recently, will recollect that a person with the basic elementary education could aspire to a supervisory or even managerial post in industry. Since the war, however, industry has experienced a tremendous, almost revolutionary change in the techniques of manufacturing, distributing and selling its products. Research and development have grown at an unprecedented rate. Perhaps equally important has been the increasing growth of technical, professional and managerial functions.

THE FOREMAN'S CHANGING ROLE

The foreman today must be technically proficient, able to handle constantly changing methods. In addition, he must be able to handle administrative duties requiring the ability to communicate easily and effectively -- both orally and in writing.

ROLE OF MODERN ACCOUNTANT

The accountant in modern industry is expected to know all about the principles of mechanized accounting, special fields of cost, budget and financial control. Simple double entry bookkeeping is not found in large modern industry today. Developments such as these are too numerous and complex to cover here, but they have made their initial impact and are still spreading out over every facet of industry and commerce.

The inadequately educated person has only a limited chance to obtain promising and rewarding employment in this situation because he cannot hope to compete with his better educated contemporaries for the important posts that are increasing in number each year.

DEMAND FOR WELL-EDUCATED PEOPLE WILL CONTINUE

This technical revolution has been the means whereby industry has had such a fabulous growth in the past 20 years. This growth continues at a quickening pace, and the demand for well-educated young people will grow with the technical advancements. To participate in this expansion, young people must come to realize the absolute necessity of qualifying for the important jobs to be done in this vital phase of Canadian economy. To all students, then - young men and women alike - let me say this: The door to opportunity is there to be opened, and the key to that door is a sound, basic education. The wise will attempt to pass through it while they are still young.

PART THREE

AUTOMATION, TECHNOLOGICAL CHANGES AND THE EFFECTS ON SKILLED MANPOWER IN FIVE INDUSTRIES

In The Automobile And Parts Industries

(Excerpts from Report No. 8, Research Program on the Training of Skilled Manpower).

PRODUCTION UP, NUMBER OF PRODUCTION WORKERS DOWN

Although production increased in the automobile industry by more than 36 per cent, and total employment advanced by seven per cent between 1948 and 1958, the number of employees engaged in direct production fell by more than six per cent during the same period.

PRODUCTION LABOUR DROPS 10 PERCENT IN 10 YEARS

A sizeable increase in productivity was noted in the automobile industry, but this expansion was accompanied by a drop in direct production labour, as a proportion of total employment, from 83 per cent in 1948 to 73 per cent in 1958. There was a smaller but similar decrease in the parts industry.

GROWTH IN EMPLOYEES IN MORE SALARIED POSITIONS

Indirect labour increased from 17 per cent to 28 per cent during the same period. Salaried employment in the automobile industry accounted for a substantial increase in employment during the period 1948-58. There was a fast rate of growth in manufacturing administration due to increased employment of people engaged in production planning, scheduling, quality control, time study, and inspection.

LEVEL OF SKILL INCREASING-

UNSKILLED JOBS ARE REDUCED

The general skill level in these industries seems to have increased slightly as a result of greater mechanization, owing to expansion in employment in certain skilled trades and a reduction in the number of unskilled jobs. Employment of unskilled material handlers declined sharply and there is no doubt that these types of jobs were most susceptible to mechanization. By contrast, inspection increased in importance both in terms of numbers and in upgrading of skill requirements. Assemblers, generally speaking, were not greatly affected by changes in production techniques, for the reason that assembly operations have thus far lent themselves less readily to mechanization than have fabrication or machining operations.

IMPACT OF CHANGE DEPENDS ON NUMBER OF FACTORS

It was found that the impact of technological change on workers differed from area to area and depended on a number of factors, such as the availability of alternate employment, the mobility of the displaced workers, collective agreements and general labour market conditions.

THE HOUSEHOLD APPLIANCE INDUSTRY

(Excerpts from Report No. 3, Research Program on the Training of Skilled Manpower, Department of Labour, Ottawa).

While the conclusions of this study cannot be expressed precisely in statistics, the following broad statements seem to be justified:

1. There are many different kinds of technological change, including the introduction of new or improved products, new processes, new materials, and improved organization. Change proceeds at different rates in different plants, largely because of the differing economic positions of the firms concerned.

CHANGES IN THE INDUSTRY

The most important changes, which require the investment of considerable capital, tend to be introduced in those plants which have a large volume of sales and access to large reserves of capital. Access to foreign designs and foreign engineering may also be an important advantage. The technological changes are likely to strengthen further the position of these plants relatively to their competitors.

The plants which are in a weaker position and which cannot afford major technological changes are likely to be forced by the strenuous competition in the Household Appliance Industry into such alternative courses as, for example, to shift to less competitive products outside the household appliance field, to concentrate on one of two specialties for which they have an established reputation, or to join with a stronger firm outside Canada.

TREND TO MORE MECHANIZATION

It seems probable that there will be continued trends toward a higher degree of mechanization and a greater volume of production from the individual plant.

2. In recent years, while the physical volume of production has been increasing, the number of production workers employed, by the plants included in the present survey, has been decreasing. Output per employee has been increasing as a result of technological changes.

Few employees have been laid off as a direct result of technological changes. However, when layoffs occur during periods of business recession, it seems possible that they may be due in part to earlier technological changes, rather than due entirely to market conditions.

EMPLOYERS CONSIDER EMPLOYEES IN PLANS FOR CHANGES

3. Employers in most cases have planned the introduction of technological changes in such a way as to minimize the displacement of employees. It is desirable to continue this policy, and to provide for the retraining of displaced employees when this is required to fit them for other jobs.

SKILLED AND PROFESSIONAL JOBS INCREASE-OTHERS DECREASE

4. The proportion of manpower employed in direct production tends to be reduced by technological change, relatively to the proportion employed in such functions as engineering, quality control, maintenance, and tool-making. These latter functions require a much higher percentage of skilled and highly-skilled manpower than direct production. The relative demand for skilled and highly-skilled manpower is therefore increasing.

5. In such functions as maintenance, the level of skill required is rising, chiefly because of the need for more theoretical knowledge of such subjects as electronics, hydraulics, or metallurgy.

6. The volume of engineering work done in Canadian plants is increasing, in spite of the widespread use of imported designs.

7. The mechanization of office work has been proceeding perhaps still more rapidly than that of production. However, this has been accompanied by a rapid increase in the volume of office work, and in the variety of data required by management, and the rapidity with

which it is processed. Total office employment has been increasing in the plants surveyed, unlike production employment.

DEMANDS FOR HIGHER SKILLS AND KNOWLEDGE

8. In several fields, including engineering, maintenance, quality control, office work, and others, there is an increasing demand for workers trained to higher levels than in the past. There is especially a demand for more intensive training in such abstract fields as mathematics, physics, chemistry, metallurgy, electronics, or hydraulics. This fact is important in the planning of future vocational training.

IN THE ELECTRICAL AND ELECTRONICS INDUSTRY

(Excerpts from Report No. 2, Research Program on the Training of Skilled Manpower).

The products of the Electrical and Electronics industry are constantly becoming more varied and more complex. This applies especially to defence and industrial equipment, but also to some extent to consumer goods.

PRODUCTS BECOMING MORE COMPLEX

Similarly, the problems in designing products are becoming more complex. For this work, there is in consequence an increasing demand for highly qualified engineers, engineering assistants, and draftsmen. At all these levels, educational requirements are gradually increasing, and there is a demand for people with more intensive formal training over a broader field, which may include such subjects as physics, mechanics, chemistry, or metallurgy, as well as electricity and mathematics.

Theoretical training is more important in this industry than in some others, because of the nature of the products. The operation of an electrical circuit cannot be seen with the naked eye, but can be understood by means of theory.

PRODUCTION PROBLEMS EQUALLY COMPLEX

Production problems are also becoming more complicated, as more complex designs call for closer tolerances and stricter quality control. There is an increasing demand for qualified personnel to plan production, to carry out time study and methods analysis, and for inspection and testing.

The expanding market for many products, especially consumer goods, results in the improvement of mass-production methods and a greater use of automatic processes.

AUTOMATION SLOWER IN CANADIAN ELECTRICAL INDUSTRY

Full automation is unlikely to be introduced quickly into the Canadian electrical and electronics industry, according to some of the officials interviewed. The chief effect of automation on this industry is more likely to be an effect on the demand for its products, due to the gradual spread of automation in other industries, which will require increasing quantities of electronic calculators and electronics and electrical control equipment.

MANPOWER REQUIREMENTS SHIFT

Without proceeding to full automation, however, production in the industry is becoming more mechanized to supply the growing mass markets. One result of this is a shift in manpower requirements from emphasis on the skilled or semi-skilled production worker to emphasis on the engineers, technicians, and more highly skilled tradesmen required to plan, install, and maintain the new more highly mechanized production facilities. Products which are not mass-produced, but custom-built - chiefly defence materials and industrial equipment - must of course, be designed, and in the case of complex products this may require considerable research. New products, of course, can be developed only as the result of research. The further development of industrial research in Canada will obviously depend upon the availability of an adequate supply of qualified scientists, engineers, and technicians.

REQUIRES SUPPLY OF SCIENTISTS, ENGINEERS, TECHNICIANS, AND SKILLED WORKERS

DEMAND FOR UNSKILLED SEMI-SKILLED LESS

It appears likely that during the next ten years the greatest relative increases in manpower needs in this industry will be for professional workers, especially engineers, for technicians, for draftsmen, and for some types of highly skilled tradesmen. The demand for unskilled and semi-skilled workers seems likely to become relatively less.

IN THE HEAVY MACHINERY INDUSTRY

(Excerpts from Report No. 2, of the Research Program on the Training of Skilled Manpower).

The technological changes in progress in the Heavy Machinery Industry are resulting in an increase in emphasis on certain functions, and consequently in a relative increase in the demand for certain types of employee. Among the functions which are receiving increased emphasis are the following:

DESIGN IMPORTANT

(i) Design is absorbing relatively more effort. The increasing complexity of products, the development of new products, the closer tolerances required, and the increasing mechanization of the production process, call for more elaborate and more precise designs, and the preparation of more detailed drawings. More of the work is being done by the designer, and less is left to the skilled production worker. In an industry engaged largely in custom work, the effort which must be devoted to design is correspondingly great.

RESEARCH SPEEDED UP

(ii) Research is increasing in Canadian industry. Designs and techniques are still frequently imported from parent firms in the United States or in Europe, but this applies to mass-produced items rather than to heavy machinery. Research is desirable, from a broad point of view, in order that new products may be developed, and in order that Canadian industry may become more independent of the industry of other countries. But from a more immediate point of view, research is required into new products, new materials, and new methods of production, in order that a firm may not fall behind its competitors in the processes of technological change.

MORE EMPHASIS ON INSPECTION AND QUALITY CONTROL

(iii) Inspection and scientific quality control are absorbing a greater proportion of the manpower employed. Responsibility for the quality of the product is being transferred from the skilled production worker to the inspection staff and the laboratory. Techniques of quality control are becoming more complicated, involving in various cases statistical quality control, X-ray inspection, ultrasonic testing, optical colimators, hardness testers, etc. The level of education required in the inspection staff is consequently rising.

PRODUCTION PLANNING CHANGES

(iv) Methods analysis and production planning are becoming more important as products and processes become more complex and more varied. This is another case in which some of the work of the skilled production worker is being taken over by specialists. Work in methods and planning requires personnel who have both theoretical knowledge and experience in the plant.

LABORATORY WORK STRESSED

(v) The laboratory is becoming more important, because of its contribution to the four functions just mentioned. Control of design, quality and methods is passing from the production line to the laboratory.

As a result of the processes of technological change which have been briefly outlined, the quality of products is being improved, and output per man-hour is increasing. There are also changes in the relative demand for different types of employee.

PROFESSIONALS, TECHNICIAN IN DEMAND

The groups which appear to be required in relatively greater numbers, as a result of present technological changes, are the engineer or scientist, the technician, and the draftsman.

The skilled tradesmen, who constitute a fourth key group, have in some cases been in short supply in Canada in recent years. They do not appear to be one of the groups which is gaining strikingly in relative importance as a result of technological changes. But the overall expansion of the industry is probably increasing the absolute demand for skilled tradesmen.

In some processes, the degree of skill required of production workers is decreasing, as mechanization of the process makes it possible to substitute machine operators for the former craftsmen.

FLEXIBILITY NEEDED - FORMAL EDUCATION LACKING

In some cases, skilled tradesmen, by receiving additional formal training, are able to qualify for technician jobs. The need of formal education, however, especially in mathematics and science, is a difficult hurdle to overcome, and the more normal line of advancement for a skilled tradesman is perhaps to foreman and supervisor.

Some of the firms in the heavy machinery industry which were interviewed in 1956 complained of serious shortages of certain types

of skilled tradesmen. It appears probable that the demand for this category of worker will continue to increase, although less strikingly than the demand for engineers, technicians, and perhaps draftsmen.

LITTLE DEMAND FOR SEMI-SKILLED AND UNSKILLED WORKERS

Semi-skilled workers, since they can be trained within a short time, are unlikely to be in short supply. While mechanization may in some cases increase the relative number of semi-skilled jobs in a plant, this type of job is also in some danger of being abolished by further technological changes. It does not seem likely that the percentage of semi-skilled jobs in industry will increase in the future.

The unskilled worker is still more likely to be replaced by a machine, and it seems possible that the demand for unskilled workers may decrease relative to the total demand for manpower.

TRENDS IN THE AGRICULTURAL LABOUR FORCE

FARM LABOUR FORCE DECLINING

The number of persons employed in agriculture will probably continue to decline in the next two decades with the result that Canada's farm labour force may be reduced to slightly less than 500,000 by 1979 or 1980, according to a report entitled "Trends in the Agricultural Labour Force in Canada".

The report, which covers the period 1921 to 1959, states that the agricultural labour force reached a peak in 1939, and then began to decline rapidly in the 1940's. Between 1946 and 1959 the number of persons with jobs in agriculture declined from an average of 1,186,000 to 692,000, an average decline of 38,000 each year.

Between 1946 and 1958 the decline in agricultural employment in Canada was 40%, 10% greater than the decline experienced in the United States. A continuing growth in the domestic population should progressively reduce the rate of decline as the agricultural labour force reaches a minimum level.

CHARACTER OF FARM LABOUR CHANGING

The report states that this rapid decline has also been accompanied by changes in the characteristics of farm labour. For example, there is a diminishing supply of unpaid family help available to operators of farms. In 1946 unpaid family workers accounted

for 30.4% of the total persons with jobs on farms. By 1958 this percentage dropped to 20.7%. The number of paid or hired workers has not increased in this same period, with the result that the farm labour force today consists primarily of farm operators.

The study shows that there is a higher proportion of older worker remaining on farms today. Men in the 25 to 44 age group represented only 37% of farm labour. Over 42% of all male farm workers were 45 years old or over.

MECHANIZATION HAS ITS EFFECTS

Greater mechanization on farms and the need for less farm labour have brought changes in the pattern of seasonal employment. With the use of large scale machinery farmers speed up their seeding and harvesting operations, concentrating the employment of seasonal labour over much shorter periods of time and doing without extra year-round help after the peak period of farm activity is over.

Because of the traditional reliance on family labour, farmers have not given sufficient thought to improvements in working conditions. The hours of work are considerably longer in agriculture than in other industries. In 1958 farm workers put in an average of 54 hours per week, compared with 40 hours for workers in non-agricultural industries.

HOURS OF WORK ON FARMS

Wages for hired farm workers have been rising since the early 1940's. In 1941, the average farm wages with board for male workers was $35 per month and by 1958 the average wage had risen to $120. However, farm wages remain lower even than many unskilled jobs in other industries.

The report states that aside from the effects brought on by improved agricultural machinery and farm technology, a large number of other factors have been influential in bringing about the decline of the farm labour force since the 1940's. The small physical size of farms is one of a number of obstacles that hinder many farm families in producing a reasonable standard of living. The inadequate incomes which come from small farms have produced a shift of people out of agriculture into other better-paying industries.

OTHER FACTORS INFLUENCING FARM LABOUR

The report also deals with such matters as immigration as a source of farm labour, detailed characteristics of the agricultural labour force, general employment conditions on Canadian farms, and such factors as size of farms and farm income.

PART FOUR

VOCATIONAL AND TECHNICAL TRAINING COURSES

Careers Available Through Technical and Vocational High Schools

Just over 100 vocational, technical and composite high schools in Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia offer full-time industrial courses for young people. (Although Quebec does not operate a program in this field, that province has a broad program of training at the trade and technician levels.)

These schools are a part of the regular school system except that courses given in them are generally aimed at preparing the student for a definite occupation. Entry requires a completion of the elemenentary and/or Intermediate School.

Courses consist of at least 50 per cent shop work and subjects related to the occupation being studied. The remainder of the time is spent on academic subjects, which may be the same as those taught in the ordinary high school or may be changed to fit in with the rest of the occupational courses.

How Long Are The Courses?

Courses range from three to four years, depending on the type of course and the school or province in which it is given. Four year courses usually result in the granting of a high school diploma or its equivalent.

Where Do They Lead?

It is quite possible in many vocational and technical high schools to take those subjects which will allow a person to go on to university after graduation. For example, a student may take electricity at a technical high school and by passing those academic subjects which lead to a matriculation, he can proceed to electrical engineering in university. In this case, the technical school course is sometimes referred to as pre-engineering.

In some provinces it is also possible for vocational and technical high school graduates with proper qualifications to enter an institute of technology and take post high school technical training to qualify for technician status.

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Graduates of vocational and technical high schools are usually well-received by industry. The students are familiar with the basic aspects of the trade or occupation which they have chosen. This basic occupational training shortens the training period required in industry and therefore makes the individual a valuable employee in a shorter period of time.

What Courses are Available?

Courses differ from province to province and from school to school. Some schools offer a large variety of courses, while others have only one or two. Most of the programs are operated by local school boards under regulations of the provincial department of education. In most cases, the needs of the community are considered when courses are set up but training for employment opportunities further afield is not forgotten.

The following is a list of courses by provinces. Since the courses change from time to time, these serve only as examples. Further information may be obtained from your local school board, school officials or from the department of education in your province.

Nova Scotia - Courses are offered in two regional vocational high schools, one in Halifax and one in Yarmouth. A third school is being planned for Sydney. The courses do not lead to a matriculation.

They are: automotive, carpentry, bricklaying and tile setting, heating and ventilating, painting and decorating, plumbing, drafting (mechanical), radio and television, machine shop, general mechanics, sheet metal, welding, accountancy, bookkeeping, commercial (clerical), merchandising, stenography, dietetic aides, hairdressing, and cooking.

Courses generally require completion of grade 9, but lower grades are sometimes accepted, if a person has other qualifications. A credit of up to two years is granted for successful completion of a course in an apprenticable trade if the student wishes to enter the apprenticeship training program and work toward his journeyman status.

There is no tuition fee for students in the region served by the school, but a fee of $100 a year is charged for students from other parts of the province. Living or travelling allowances are paid to those living outside the immediate locality of the school. No bursaries are available to students of these schools.

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New Brunswick - More than 40 municipal, regional, composite and vocational high schools offer courses at the grades 10, 11 and 12 levels.

The following courses are offered: automotive, carpentry, drafting, electricity, radio and television, machine shop, sheet metal, welding, printing, cabinet making, commercial, home economics, art, and hairdressing.

Ontario - Industrial courses leading to diplomas in 25 fields are offered in approximately 60 municipally-operated vocational and composite high schools. Not all courses are available in every school. Some may offer four or five courses, while larger schools may offer up to 15 or 16. Courses are of four year's duration starting from grade 9 and lead to a secondary school graduation diploma (technical).

In some schools students who have completed a technical course with a satisfactory standing can take Grade 13 to qualify for entry to university.

Courses are offered in automotive, carpentry, woodworking, plumbing, drafting (architecture), drafting (mechanical), applied electricity, applied electronics, machine shop, pattern making (wood), sheet metal, welding, printing, aircraft mechanics, electrical and steam operating, industrial chemistry, mining, woodwork-cabinet making, accountancy, clerical, commercial, general business, merchandising, secretarial, homemaking, art, nursing assistant, hairdressing and beauty culture, food and nutrition, clothing and textile.

Manitoba - Three high schools operated by local boards in Winnipeg, Brandon, and Flin Flon, and the Manitoba Technical Institute in Winnipeg provide industrial courses. Completion of grade 9 is necessary for admission. All courses are three years.

Graduates receive a certificate from the Department of Education and may qualify for entrance to university by selecting the required academic subjects and completing one additional year.

Most of the courses offered in the province are given in Winnipeg, but the other schools do give courses related to the immediate industrial needs of the areas concerned. The following courses are

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given in Manitoba: automotive, carpentry and joinery, drafting, electricity, machine shop, sheet metal, welding, bookkeeping, commercial, stenography, commercial art, practical nursing, commercial cooking, baking, graphic arts and woodworking.

Saskatchewan - Three technical high schools at Regina, Moose Jaw and Saskatoon, offer four-year industrial courses. A student may choose courses which lead to university entrance if he desires. Industrial vocational courses are offered in a number of composite high schools but commercial courses are offered in most of them. (These courses are given in grades 11 and 12.)

Courses offered vary from school to school. The following are examples: automotive, auto body, woodworking, drafting, electricity, radio operating and servicing, machine shop, welding, bookkeeping, commercial, home economics and art.

Alberta - Vocational commercial and industrial arts courses are offered in Alberta's senior high school system. This program at High School level is centered in the composite high schools. The courses offered are: automotive, carpentry, electricity, metal work, printing, commercial and home economics.

British Columbia - Industrial courses are offered in Victoria, New Westminster, Trail, Nanaimo, Vancouver, Como Lake, Kelowna and North Vancouver. Some schools operate only one course, while others offer a larger variety of occupations.

Courses offered are: automotive, carpentry, electricity, machine shop, metal work, sheet metal, printing, foundry practice, commercial, cooking, tailoring, and wireless communication.

Opportunities Available Through Part-Time Study

Every province in Canada offers evening and correspondence courses in both academic subjects and those which lead to an industrial skill or trade.

For persons who do not have enough basic or academic education to enter a trade or a training program, there are many part-time evening classes which one can take to obtain the level of education needed.

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Fees For Courses

The fees for trade and industrial courses vary from $5 to $45 depending on the course. They range from 20 hours to 140 hours a school-year, mostly during the fall and winter, over a period of anywhere from 20 to 40 weeks.

Ontario offers special advanced technical evening courses in a number of centres by which one can develop qualifications leading to technician status. A person registering for these classes must have completed Grade XII.

Most universities have an evening program of adult education, usually in the arts and sciences. Some of these courses do not require previous university education or completion of high school.

Information on the classes offered in the evenings in your community can be obtained from your local school board, from school officials or, in the case of university courses, from the office of the registrar of the university.

Vocational Evening Courses by Province

The courses offered in the provinces vary from year to year depending on demand and the immediate need for certain classes of tradesmen. The following courses therefore are only examples:

Newfoundland: Courses are mainly for apprentices, although there are some upgrading courses in certain trades. Length of courses is 140 hours per year.

Prince Edward Island: Part-time courses are given in 16 activities including auto mechanics, bricklaying, carpentry, drafting, plumbing, electricity, sheet metal and welding. Courses are designed for adults who are working at a trade or for those who may wish to learn the trade.

Nova Scotia: Part-time courses are given in many localities in such courses as auto mechanics, carpentry, diesel mechanics, drafting, electricity, radio servicing, sheet metal, steam engines, and welding. Classes are 90 hours a year for three years. Some courses in mining trades are given in certain localities to upgrade coal miners.

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New Brunswick: Vocational evening courses are carried on throughout the province where there is a demand and space is available. Many subjects are of a general improvement nature. Some are hobby courses. Length is about 40 hours and fees vary from $5 to $6, with some higher.

Quebec: Over 150 evening courses are offered in the province's institutes of technology and junior trade schools, which are more than 50 in number. The courses cover a 20-week period and provide instruction for 40 to 60 hours. They are mainly for the upgrading of employed persons. Fees range from $8.50 to $25 depending on the course.

Ontario: Great variety of academic, cultural, hobby and trade courses are given in many centres. The industrial courses are for persons employed in the related trade or for persons who wish to prepare themselves for employment.

Special advanced technical evening courses, which require Grade XII for entry, and by which one can acquire technician qualifications are offered in Belleville, Brockville, Galt, Guelph, Hamilton, Kingston, Kitchener-Waterloo, Lake Head Technical Institute, Niagara Falls, Northern Technical and Commercial School (Toronto), Ottawa, Peterborough, Ryerson Institute of Technology (Toronto), Sault Ste Marie, Sarnia, St. Catherines, Welland, Windsor. The courses enable persons in industry to prepare themselves for advancement. There are two levels. Each level requires nine subjects with a minimum of 50 hours instruction in each subject. The Department of Education issues a certificate upon successful completion of each level of training.

Manitoba: Upgrading and pre-employment evening courses are given in the Manitoba Technical Institute, Winnipeg, and in many high schools. Courses are 40 weeks in length. Many classes are for trade and industrial occupations, while others, especially in high schools, are non-vocational.

Saskatchewan: Pre-employment and upgrading evening courses of 20 to 40 hours duration are offered in most composite and technical high schools. Fees range from $5 to $25.

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Alberta: Evening courses are given at the Institute of Technology, Calgary, and in some composite high schools. Classes at the Institute are mainly in trade and industrial fields and are designed to assist those people already in industry. They include such courses as aircraft riveting, automatic transmissions, blueprint reading, carpentry, concrete technology, diesel mechanics, drafting, electricity, elementary metallurgy, machine shop, motor tune-up, oil chemistry, photogrammetry, radio, refrigeration, steam engineering, television receivers, welding and wheel alignment. Most courses are 72 hours and fees run from $16 to $25.

The Edmonton School Board offers courses of 80 hours each in radio servicing, machine shop practice, welding, auto mechanics, steel square and roof framing, drafting and electrical theory. The first four can be taken by persons who wish to change their occupation. The others are designed for people working in the occupations.

British Columbia: Extension evening programs are operated in 44 centres in the province. Nearly half the courses are vocational. The adult educational program offered in the city of Vancouver is one of the best organized and most extensive and effective programs offered in Canada.

Some of The Correspondence Courses Offered

Over 100 correspondence courses in vocational subjects are offered by the provincial governments and are available to all Canadians for a nominal fee. More information on vocational correspondence courses can be obtained by writing to the addresses listed below.

Nova Scotia - Correspondence Study Branch, Box 1650, Halifax, N.S.; New Brunswick - Correspondence Courses, Department of Vocational Education, Fredericton, N.B.; Québec - Service des Cours par correspondance, 506 est, rue Sainte-Catherine, Montréal 24, (P.Q.); Ontario - Correspondence Courses Branch, Department of Education, 206 Huron Street, Toronto 5, Ontario; Manitoba - Vocational Branch, Department of Education, 280 William Avenue, Winnipeg 2, Manitoba; Saskatchewan - Government Correspondence School, Department of Education, Regina, Saskatchewan;

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Alberta - Department of Correspondence Instruction, Provincial Institute of Technology and Art, Calgary, Alta.; British Columbia - Director of High School Correspondence Instruction, Department of Education, Victoria, B.C.

Apprenticeship - The Road To A Skilled Job

What Is Apprenticeship?

Apprenticeship is a well organized long-term program of training on the job and in the classroom. It fits a person to follow one of numerous skilled trades, such as toolmaking, steamfitting, auto mechanics, welding, painting, carpentry and bricklaying, to mention just a few of the dozens of skills so vital to industry.

Courses vary in length from two years to five-and-a-half years, depending on the trade and the province in which the training is given. Generally apprenticeship is for four years. Most of the training is given on the job where apprentices develop skill in the use of equipment, machine tools and the material used in a trade.

During his apprenticeship, a person will be moved from job to job within the plant or on a construction site. These moves may take place every week, perhaps every three weeks or even every six months, depending on the company. In this way the apprentice becomes familiar with all the phases of the trade in which he is serving an apprenticeship. The theory of the trade is taught in the classroom and includes such things as mathematics, science and other subjects which are needed before a person can become a first-class tradesman.

It is usual for the apprentice and the employer to sign the apprenticeship contract or agreement which outlines such things as wages as a percentage of the journeyman's rate, length of training, and the duties of the employer to the apprentice and the apprentice to the employer. Although wages are usually low in the beginning increases are granted every six months for successful apprentices until the apprenticeship is completed and future earnings compensate for the lower beginning wages.

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What Do I Get When I Finish Training?

When an apprentice has completed his term of training he becomes a journeyman. Usually his company or the provincial Department of Labour will issue him a certificate stating he has completed his apprenticeship and is qualified to practice his trade. When a company registers its apprentices with the province, the graduate apprentice may also receive a provincial certificate or a certificate issued jointly by the company and the province.

In some trades, at present motor vehicle repair, electrical and plumbing most Canadian apprentices write the same interprovincial standards examination upon the completion of indentureship. Those who have passed successfully have a special seal affixed to their certificates. This qualification is accepted in all provinces as the mark of a well-trained tradesman.

Where Does Apprenticeship Lead?

Good skilled tradesman are always in demand. After an apprentice becomes a journeyman, at the end of his course, he becomes a very valuable and important employee of the company for which he is working.

From the ranks of apprenticeship come the foremen, the supervisors and in some cases, even company presidents. A journeyman with a few years of experience may open his own business.

There are many examples of apprentices becoming top men in industry. The owner of a large construction company who was an apprentice once himself, says "In my business, all of my superintendents have reached that position from apprenticeship training."

There is another example of the young man who graduated as an apprentice six years previously and was appointed superintendent at a salary of $25,000 a year. There are many other cases in Canadian industry where apprenticeship has led to very responsible and well-paid positions.

Some companies provide technician training which is a step above apprenticeship. Often an apprentice, after completing his training, may go on to become a technician, who assists the engineers and scientists in a plant.

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These same companies sometimes provide further education and training through which a technician may become an engineer. A few larger Canadian companies have this type of training plan. Although this road to engineering takes longer to travel than would be the case if a person attended university, it does give the worker a good background and broad experience to fit him for advancement and has the advantage that he can learn while he earns.

How Much Education Do I Need?

A large number of companies will not accept persons for apprenticeship with less than a Grade 9 education. There is a general tendency to raise this level in line with the increasing complexity of modern trades.

Many companies demand graduation diplomas from high, technical or vocational schools. In a recent study of the apprenticeship plans of 45 companies, it was found that they generally favoured apprentices who had completed any of the grades from 10 to 13, and who were able to pass a series of tests.

It appears that the broader the basic education which an apprentice has, the better are his chances of getting a more secure and well-paid job, such as foreman or supervisor, after he has completed his training. Staying in technical, vocational or high school a year or two longer frequently helps a person to get ahead faster in a trade.

For those men who do not have the required level of education to enter apprenticeship, courses offered in some of the provincial trade schools provide a first step toward becoming an apprentice and a skilled tradesman. There are also night school and correspondence courses offered by provincial departments of education which will give a person the qualifications needed to enter apprenticeship.

Short-term training for unemployed persons is offered in most provinces and in some cases courses are given which eventually lead to apprenticeship and a skilled trade. (Information on this type of training may be obtained from your local National Employment Service office.)

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How Old Do I Have To Be?

Traditionally apprenticeship is thought of as a young man's training program. This is not entirely true. Most provinces have no maximum age limits for apprentices except that a person must be of school leaving age. Many companies do specify age limits, ranging from about 16 to 25 years of age. A check with companies offering apprenticeship programs is the best means of finding out whether or not this training is limited to younger people.

How Do I Enter Apprenticeship Training?

A number of Canadian companies offer apprenticeship training. There may be one or more programs operating in your community. A few businesses advertise for apprentices. But the best sources of information about what, and where, training is available are your local National Employment Service offices, provincial apprenticeship officials, trade and industrial unions, or the companies themselves.

The Province of Quebec operates a number of apprenticeship training centres which introduce young people to the skills of a trade and help them to learn good work habits. These centres are located at Montreal, Sherbrooke, Chicoutimi, Hull and Quebec. Graduates from these schools are granted credits of up to 18 months on their 4-year apprenticeship terms.

CANADA'S TRADE SCHOOL PROGRAM

Who Attends Trade Schools?

Anyone over the compulsory school attendance age may attend trade school courses. The schools are designed to prepare adults and youths who have left the regular school system for entry into employment, or to help those people already employed to advance in their jobs. There are no age limits on this type of training.

What Can I Learn There?

Over 100 different courses in the automotive, building construction, drafting, electrical and electronic, mechanical and metal working, service and commercial occupations, and numerous other fields are offered in the 80 schools across Canada.

A few of the courses are: auto mechanics; bulldozer operator; diesel; heavy equipment mechanic; barbering; hairdressing; cooking, meat cutting; clothing and design; dressmaking; practical nursing; bricklaying; carpentry; plastering; plumbing; drafting; electricity; electrical appliance repair; radio; television servicing; watchmaking; jewellery arts; shoemaking; shoe repair; food service management; secretarial;

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stenography; accountancy; wireless operation; forestry; log scaling; marine biology; navigation; and marine engineering; machine shop; sheet metal; welding; cabinet making; painting; refrigeration; stationery engineering; woodworking and tile setting.

Some of these courses can lead to apprenticeship. A few provinces will allow from one to two year's credit in apprenticeship to persons who have successfully completed some of the trade courses.

Not all of these courses are offered in each province. More details about the types of courses given in your nearest trade school can be obtained from your National Employment Service office, the school itself or from the provincial department of education. (Dept. of Youth in Quebec).

How Long Are The Courses?

The courses vary in length from a few weeks or days to two years depending on the occupation. There are, for example, two year courses in automotive and also 3-6 months courses. Most courses are six months or more in length.

The courses are not designed to provide general education. They deal with the skill of one occupation or another as well as the trade theory and the related mathematics and science needed for occupational competence.

What Education Do I Need To Enter These Courses?

A person must have finished at least grade eight in order to enter most trade school courses. In Quebec, one must have completed grade seven as a minimum. Some of the courses, however, require more education, sometimes graduation from high school.

If a person does not have these grades, he or she may increase their education by attending night school or by taking correspondence courses offered by provincial departments of education. Local public or high schools can supply information on the academic courses offered to adults.

How Much Does It Cost To Attend A Trade School?

Fees charged for courses in trade schools vary from province to province and often depend on the length and nature of the courses.

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Some provinces offer the courses free of charge. In one province, for example, there is no tuition fee, and a living allowance of from $9 to $22 a week is paid to the student, depending on his marital status and whether or not he lives in the community where the courses are offered.

In another province the fee for everyone attending full-time classes, except apprentices, is $125 a year. Fees of from $15 to $40 per month, depending on the courses taken, are charged in one province. Another province charges $5 for each three months and pays some living allowances, while still another charges $5 per course and $1 per month. In general most provinces charge some fee.

Where are the schools located?

Newfoundland

Vocational Institute, St. John's.

(Dept. of Fisheries gives courses annually at different centres in the province).

Prince Edward Island

Provincial Vocational School, Charlottetown.

Nova Scotia

Schools in Halifax, North Sydney, Stellarton and Springhill.

(Dept. of Trade & Industry gives fishery courses at Fishery School, Pictou and by use of mobile school at different centres).

New Brunswick

New Brunswick Technical Institute, Moncton.

(Forestry at Maritime Forest Ranger School, Fredericton).

Quebec

Trade schools in Alma, Amos, Asbestos, Cabano, Cap-de-la-Madeleine, Drummondville, Granby, Grand-Mère, Grandes-Bergeronnes, Joliette, Knowlton, La Tuque, Lauzon, Louiseville, Matane, Mont-Joli, Montmagny, Mont-Laurier, Montreal (4 schools), Plessisville, Port Alfred, Rivière du Loup, Rouyn, Ste Anne des Monts, St Gabriel de Brandon, St Jean, St Jérôme, Shawbridge, Sorel, Thetford Mines, Trois-Rivières, Valleyfield, Victoriaville, and the Automobile School in Montreal and Québec. (Some service occupations and trades given in institutes of technology.)

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(Marine and Communications programs given at Naval Institute, Rimouski.) (Dept. of Lands & Forests gives courses at Forestry School, Duchesnay).

Ontario

Provincial Institutes of Trades, Toronto. (Hospital services training carried on by Dept. of Health in schools in Hamilton, Lakehead, Ottawa, Sudbury and Toronto. (Dept. of Lands & Forest offers forestry at Ontario Forest Ranger School, Dorset.)

Manitoba

Manitoba Technical Institute, Winnipeg.

Saskatchewan

Canadian Vocational Training School, Saskatoon.

Provincial Technical Institute - Moose Jaw.

Alberta

Southern Alberta Institute of Technology, Calgary.
Canadian Vocational Training Centre, Edmonton and Calgary.
(Dept. of Public Health carries on hospital services training at School for Nursing Aides in Calgary and Edmonton).

British Columbia

Vancouver Vocational Institute, Vancouver, and the BC Vocational schools at Nanaimo and Burnaby.

Northwest Territories

Yellowknife.

Training To Be A Technician

What Is A Technician?

The engineering or scientific technician is the liaison or the connecting link between the engineer or scientist and the skilled worker. He translates creative ideas into new machines, products, structures or processes. He is familiar with the hand and machine tools of the skilled worker and understands the basic principles of mathematics, science and engineering. He is specialized in a more limited area and is more concerned with the practical application of established principles and theory than with the development of the theory and principles themselves.

How Do I Become a Technician?

A technician usually receives his education and training in an institute of technology. Technician courses vary in length

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from two to three years. The usual entrance requirement for technician training is the completion of secondary school.

In Ontario, special evening courses are offered at the technician level in a number of centres. By taking subjects in an organized and approved pattern in the special technician evening school program it is possible to receive a Department of Education certificate for the successful completion of the course.

Many companies encourage their better tradesmen and other promising employees, who have the necessary academic background, to attend the evening technician training classes as a part of their employee upgrading program.

How Much Education Do I Need?

Secondary or high school graduation with a good background in mathematics, science and English (or French) is required. This is grade 12 in Prince Edward Island, New Brunswick, Ontario and British Columbia, grade 11 in the other provinces.

In Quebec, a concentrated pre-entry year may be taken at an Institute of Technology after the completion of second-year high school. This concentrated year is designed to provide the student with the necessary background to permit him to enter their regular three year Institute of Technology program. This method of entering an institute is the exception rather than the rule.

Industry seldom will train persons below Grade XII level for technicians because of the high levels of mathematics and science required for the technician. Technician training in years of education, compares approximately to the level of second year university, however it differs in its aims, objectives and in the approach to the subject matter presented.

What is the Employment Outlook for the Technician?

In Canada, some alarm has been shown because an insufficient number of Institutes of Technology exist to meet the current demand for well-trained technicians. Our Canadian economy requires more well-trained personnel to work at this intermediate level. The minimum current requirements for technicians are one for every engineer or

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scientist. The number of engineers alone who are expected to be graduated in 1960 was approximately 2,000. The number of technicians who actually graduated from a two and a three year course was 1,500.

Some of the Courses Offered by Provinces

Listed below are examples of courses offered in Canadian technical institutes. These change from time to time, new courses are added and others are terminated as the need arises. Not all of the courses listed are given in each school. Bursaries and scholarships are available to assist in payment of fees and general costs of education. (More detailed information is available from the schools listed at the end of this article.)

Mechanical, metallurgical, chemical, pulp & paper making, textiles, electronic, electrical, architectural, surveying & map drawing, marine engineering (mechanics), navigation, graphic arts, ceramics, interior design, furniture design & making, aeronautical, gas, petroleum, instrumentation, building construction, mining, forestry, automotive service, drafting, aircraft maintenance, public health laboratory, radiology and X-ray, physical and occupational, merchandising admin., business administration, food services administration, hotel and restaurant administration, secretarial science, furniture and interior design, dress design, journalism, printing administration, pre-school education, radio and television arts, home economics, photographic arts.

Further Inquiries

Detailed information about courses, fees etc., may be obtained from any of the following institutes or from the Dept. of Education in your province. (Dept. of Youth in Quebec.

Nova Scotia

Nova Scotia Land Survey Institute, Lawrencetown.

New Brunswick

New Brunswick Technical Institute, Moncton.

Quebec

Institute of Applied Art, Montreal,
Institute of Graphic Arts, Montreal,
Marine Institute, Rimouski,
Institute of Paper, Three Rivers,

Institute of Textiles, St. Hyacinthe,
Institute of Dairying, St. Hyacinthe and
Institutes of Technology at Arvida, Chicoutimi,
Hull, Lauzon, Montreal, Quebec,
Rimouski, Shawinigan, Sherbrooke, and
Three Rivers.

Ontario

Provincial Institute of Mining, Haileybury
Lakehead College of Arts, Science and Technology, Port Arthur
Ryerson Institute of Technology, Toronto
Eastern Ontario Institute of Technology, Ottawa
Hamilton Institute of Technology, Hamilton, and
Western Ontario Institute of Technology, Windsor.

Saskatchewan

Saskatchewan Technical Institute, Moose Jaw.

Alberta

Provincial Institute of Technology and Art, Calgary.

British Columbia

Vancouver Vocational Institute, Vancouver; and
Federal-Provincial Trades and Technical Institute, Burnaby.

APPENDIX

DEFINITIONS AND EXPLANATIONS FOR TERMS USED IN TECHNICAL AND VOCATIONAL EDUCATION AND OTHER RELATED FIELDS IN CANADA

Fields of Education or Training

Adult Vocational Education - A program of instruction for adults or out-of-school youth over compulsory school attendance age who are already engaged in or are preparing to enter an occupation. The purpose of the instruction is to provide pre-employment training, retraining or training of an upgrading nature which may be offered on a full-time or part-time basis.

Agricultural Education (Vocational) - Programs of instruction for prospective and established farmers, organized for the purpose of improving farm methods and rural living. Objectives are to develop abilities to: make a beginning and advance in farming, produce farm commodities efficiently, market them advantageously, conserve soil and other resources, manage a farm business. Training may be given in short or long term courses, either as part-time or full-time day classes.

Apprenticeship Training - Apprenticeship training is an organized regulated program of on-the-job and school instruction, extending at least 4,000 hours. It is designed to develop the skills, impart trade theory and related knowledge of a skilled trade, and acquire the experience needed for full trade competence, to an apprentice who is at least 16 years of age, and who is under agreement with an employer or other responsible body.

The program usually involves co-operation among school, labour, and management since apprentices learn the skills of the craftsman through on-the-job work experience, pre-employment class training, or by supplementary class training and the related information in the school. The terms and conditions of apprenticeship are regulated by provincial statutes or local agreements.

Business Education - An instructional program designed to develop in students the marketable skills, knowledges, and attitudes needed for initial employment and advancement in business occupations.

The business curriculum includes stenographic subjects (typing and shorthand), bookkeeping, clerical practice, and office machines.

Co-operative Vocational Education - A training program that provides for alternation of study in school with a job in industry or business, the two experiences being so planned and supervised by school and employer that each contributes definitely to the student's development in his chosen occupation. Work periods and school attendance may be on alternate days, weeks, or other periods of time, but the hours at work equal or exceed the hours spent in school during the regular school year. This plan of training may be used in business, distributive trade and industrial courses.

Diversified Occupations Program - (diversified co-operative training) - A high school course in which students are given supervised work experience in any one of a variety of occupations, combined with related classroom instruction. This type of program is especially suited to communities where the need for workers in any one occupation is too limited to justify separate courses for each trade. The diversified occupations program is usually under the direction of the trade and industrial education division.

Distributive Education - A program of instruction offering training in the selling, marketing, and merchandising of goods and services, for the purpose of improving distribution and upgrading distributive workers, including employees, managers, and owners engaged in distributive occupations.

Homemaking Education - Education which is centered on home activities and relationships, designed to develop competencies in making a home, or improving home and family living.

Industrial Arts Education - Instructional shopwork with a non-vocational objective which provides general educational and exploratory experiences centered around the industrial and technical aspects of life and offers orientation in the areas of appreciation, production, consumption, and recreation through actual experiences with materials and goods.

Training On The Job (T.O.J.) - Instruction in the performance of a job given to an employed worker by the employer or fellow workers during the usual working hours of the occupation during which wages are paid.

Pre-Employment Training - Organized, intensive instruction designed to prepare for entry into employment in a specific job or a trade or for retraining of workers leading to new duties or a new position.

Vocational Rehabilitation - The service of preparing disabled persons for remunerative employment through diagnosis, guidance and counselling services, physical restoration, training, and placement.

Supervisory Training - Organized instruction to assist foremen and supervisors in industry and business, in various phases of their work, including training workers, personnel relations, production improvement processes and safety practices.

Technical Education - Education to earn a living in an occupation requiring a thorough knowledge of technical information and an understanding of the laws of science and technology as applied to modern design, production, distribution and service.

Trade and Industrial Education - Instruction which is planned for the purpose of developing basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of preparing young persons for initial employment in industrial occupations or to upgrade or retrain workers employed in industry.

Upgrading Training - All forms of training for individuals whether employed or unemployed for the purpose of improving or increasing their efficiency in skills, knowledges, or both.

Vestibule Training - A program organized by the employer in his plant for the preliminary training (short, intensive) or "breaking in" of new employees on special machines and operations.

Vocational Education - Education designed to develop skills, abilities, understanding, attitudes, work habits and appreciations, encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. It is an integral part of the total education program and contributes toward the development of good citizens by developing their physical, social, civic, cultural, and economic competencies.

Schools or Training Institutions

Area Vocational School - A school offering specialized training to prospective students from a large geographical territory, usually involving more than one school district, and may be operated or sponsored by either the province or the municipality.

Composite High School - A secondary school that offers both general education courses and technical and vocational education courses in its program.

Evening School - An institution, public or private, that offers an organized program of courses for the convenience of adult students during nonworking hours.

Technical and Vocational High School - An educational institution at the secondary level which is vocational in objective, and which emphasizes technical subject matter content with the objective of preparing students for further advanced studies in technological fields, as well as courses which have as their purpose preparatory training of individuals in one or more skilled or semi-skilled trades or occupations as a part of their regular secondary school program.

Technical Institute (In Canada) - A school which offers both technical education in one or more fields, to prepare people for employment in positions in the area between the skilled trades and professional engineering, as well as trade or occupational training leading to competence as an operator or tradesman.

Trade School - A public or private vocational school which trains youth and adults in the skills, technical knowledge, related information, and development of judgment necessary for success in one or more skilled trades or occupations.

Institute of Technology - An educational institution offering a training program of two to three years duration at the post-high school level. The content of the courses is beyond that taught at high school level and is technological in character and emphasizes understanding and application of scientific principles rather than manual skills.

Classes or Instruction Course Program

Adult Farmer Classes - Classes of farmers who are established in the farming business and who are interested in increasing their farming proficiency through attending regular instructional sessions. Such classes are of short term duration, often held in the evenings, and usually centered around one enterprise or unit of interest.

Full-time Trade Classes - Courses conducted for persons regularly enrolled in a full-time school who have selected a trade or industrial pursuit and who wish to prepare for useful employment in that occupation. Training is comprehensive and includes instruction in manipulative processes and also in those technical and other related subjects which are needed by the skilled and competent worker.

Clerical Practice - A business subject dealing with the various duties of office workers other than stenographic; e.g. typing, filing, keeping records, handling office forms, and using duplicating, computing, and other office machines.

General Shop Course - A multi-activity program in industrial arts generally at the intermediate, or junior high school level.

Part-time Vocational Program - Programs conducted for workers either during the usual working hours of the occupations in which they are employed or after the usual working hours. There are three general kinds, as follows:

(a) Part-time trade extension classes - classes for giving instruction to employed workers for the purpose of increasing

or extending their skill and knowledge in the trade or occupation in which they are or have been engaged.

(b) Part-time trade preparatory classes - classes providing instruction for workers who have left the full-time school for the purpose of fitting themselves for useful employment in trades, occupations, or fields of industry other than those in which they are or have been employed.

(c) Day release - a program in which workers are released from employment for one or more days per week to attend classes providing instruction intended to develop occupational competence or technical knowledge.

(d) Block release - a program in which workers are released from employment to attend formal classes for periods varying from weeks to months who return to the school during their usual working hours.

Plant Training - Any type of instruction given by the employer during working hours, in his own establishment.

Related Subjects - Classroom and laboratory courses designed to increase knowledge, understanding, and ability to solve technical and theoretical problems concerned with a particular occupation.

Retraining Programs - Courses which provide instruction, serving to prepare persons for entrance into a new or different occupation or to instruct workers in new skills demanded by technological changes in their trades.

Secretarial Practice - An advanced vocational course designed for prospective stenographers and secretaries who have acquired basic stenographic skills and need training and experience in performing the various office duties expected on the job.

Unit Short Course - A self-contained training program of relatively short duration for the purpose of giving instruction in a single phase of a subject or in the operation of a specific machine.

Trade Preparatory Programs - Education to prepare for entrance into gainful employment in an industrial occupation. It is that type of vocational education given in full-time day trade or technical institute classes.

Trade Course - Instruction organized for persons attending full-time school who are preparing for advantageous entrance into a specific trade or industrial pursuit. Courses are based solely on instruction for a particular trade or occupation.

Vocational Subject - Any school subject designed to develop specific skills, knowledges, and information which enables the learner to prepare for or to be more efficient in a trade or occupation.

Shop or Training Facilities

General Shop - A school shop designed and equipped to offer two or more areas of instruction in industrial arts within one instructional area. Such a shop may contain facilities for teaching drawing, woodworking, metalworking, graphic arts, and electricity, or a similar combination of teaching areas. It is sometimes called general shop, multiple-activity shop, comprehensive shop-Industrial Arts shop.

Farm Mechanics Shop - A school shop designed for instruction in the kinds of mechanical work a farmer needs to know in operating his farm and improving his home.

Planning Center - The area in a shop or laboratory where mechanical drawing equipment, magazines, reference and textbooks are available for students to use when developing shop jobs or projects.

Unit Shop - A school shop designed and equipped to provide training in a single industrial occupation, or a single kind of material or type of work.

Individuals

Skilled Mechanic - One competent to perform, with a high degree of expertness most or all of the work in a given trade.

Co-ordinator of Co-operative Part-Time Instruction - A member of the school staff responsible for integrating the classroom instruction and the on-the-job activities of the employed student. The co-ordinator acts as liaison between the school and employers in programs of co-operative education or other part-time job training.

Skilled Operator - One competent to perform efficiently and expertly one or more kinds of repetitive production or single purpose jobs on machines or other special equipment, demanding manual dexterity.

Supervisor - The professional person responsible for the promotion, development, maintenance, and improvement of instruction in a given field. Supervisors may operate at the local, area, or provincial level and much of their work is concerned with in-service training for vocational teachers.

Journeyman - A worker who has satisfactorily completed his apprenticeship and is classified as a worker with full occupational competence in his trade.

The Technician - The engineering laboratory technician is one who is qualified by specialized technical and practical training to work at an intermediate level between the engineer or scientist and the skilled worker. He May be specialized in a limited field and is more concerned with the practical application of established principles and theory than with the development of the theoretical principles.

Teaching Methods

Course of Study - An inclusive outline of the content of a particular subject or course of training arranged in a teaching sequence, including projects, demonstrations, related information and skills involved in teaching a subject and covering a specified period of time.

In-Service Training for Teachers - Instruction and supervision for employed instructional personnel, for the purpose of improving their professional skill and abilities.

Instruction Sheets - Written teaching aids which contain organized material for the use of individual students. There are four common types:

(a) Operation sheet - gives directions on how to perform a single manipulative task.

(b) Job sheet - gives directions on how to do, completely and in proper sequence, a number of operations.

(c) Information Sheet - contains everything necessary for the understanding of an instructional unit which is largely informational in nature.

(d) Assignment Sheet - directs the study to be done by the student on the lesson topic, and may include questions to determine how well the lesson has been learned.

Professional Education Courses - The curriculum in a teacher-training institution which emphasizes the study of the history, philosophy, psychology, content, methods, etc., of technical and vocational education as they relate to teaching.

Progress Chart - A running record showing the operations, jobs, projects, or other assignments completed and level of attainment by the individual students in a class.

Project - An article, activity, investigation, or problem chosen by or assigned to a student for its planning and construction or completion.

Project Method - A motivating technique of instruction in which the teaching units are combined and related to the normal life activities being encountered by the students.

Job - A specific, assigned task which provides the media by which the student practices and develops skills for an occupation.

Teacher-Trainer - A professionally qualified person responsible for the pre-employment and in-service training of teachers. He helps teachers or prospective teachers to secure the professional knowledge, abilities, understandings and appreciations, which will enable them to qualify for professional employment or advancement in teaching positions.

Teaching Aid - An auxiliary instructional device, such as a chart, drawing, picture, film, mock-up or a working model, intended to facilitate learning.

Analysis

Job Analysis - A detailed listing, in a logical sequence, of the duties, operations, and skills necessary to perform a clearly defined, specific job, to be used for teaching, employment, or classification purposes.

Survey, Community - A fact-finding study of socio-economic conditions and resources, community agencies, industries, business, farming, institutional practices, problems and practices of families, etc., as they exist at a given time in a given community, used by the school or education authority as a guide in revising school offerings to meet local needs.

Survey, Occupational - An investigation and evaluation to gather pertinent information about a single industry or the occupations of an area, to determine the need for training, the prevalent practices, the labour supply and turnover, etc., for the purpose of organizing or maintaining the vocational program at a realistic level.

Survey, Vocational Education - A study to obtain necessary information as a basis for the proper development of programs of vocational education. It serves to identify the needs for vocational training, recommend suitable types of classes, assist in the development of new instructional processes and evaluate the results of work already done.

Trade Analysis - A detailed organized listing or breakdown of a trade or occupation to determine the skills or operations, the tool processes, trade theory, or technical information; and related information which must be taught and learned for the satisfactory performance or practice of the trade or occupation.

Guidance

Exploratory Course - School subject designed to provide the student with a broad, general experience or overview of the knowledges, skills and work of a field of learning or an occupation.

Vocational Guidance - The process of assisting an individual to understand his aptitudes, interests and abilities, as well as the requirements of occupations with a view to choosing a suitable vocation, and to prepare for it.

Occupational Information - Systemically organized data, about the nature of the work, duties, responsibilities, and compensations involved in one or many occupations including information about employment outlook, promotional opportunities and entrance requirements for the purpose of helping persons make a choice of vocation.

Placement Service - Assistance in helping persons to locate work, either part-time or full-time, in the field for which they are trained, which is consistent with their abilities, experiences, and backgrounds.

General

Technical and Vocational Advisory Committee - A group of persons, usually outside the educational profession, selected for the purpose of offering advice and counsel to a school or education authority regarding the vocational program, giving particular attention towards keeping the program attuned to community needs. Members are representatives of those people who are directly interested in the activities with which the vocational program is concerned. (See also Craft Advisory Committee).

Craft or Trade Advisory Committee - A group of local craftsmen selected from a specific trade or occupation appointed to advise on matters pertaining to the training program of a particular trade or occupation. When appropriate, the committee should include an equal number of representatives of labour and management.

Service Trades - Those occupations which have as their primary purpose the rendering of personal service to the customer or maintenance of existing equipment.

Federal Aid - A grant or payment made by the federal government to a provincial government in the form of financial reimbursement for expenditures on specified types of training activities.

OTTAWA, April 24, 1961.